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SEPTEMBER-OCTOBER, 1945

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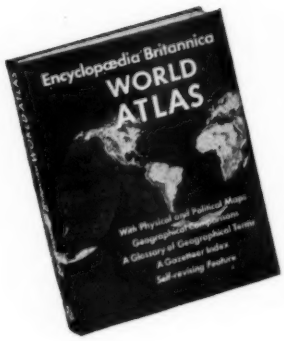

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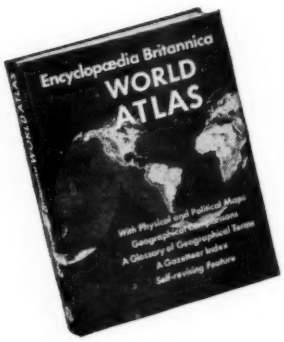

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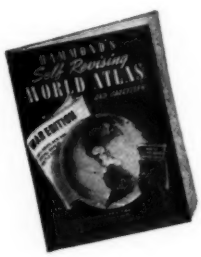

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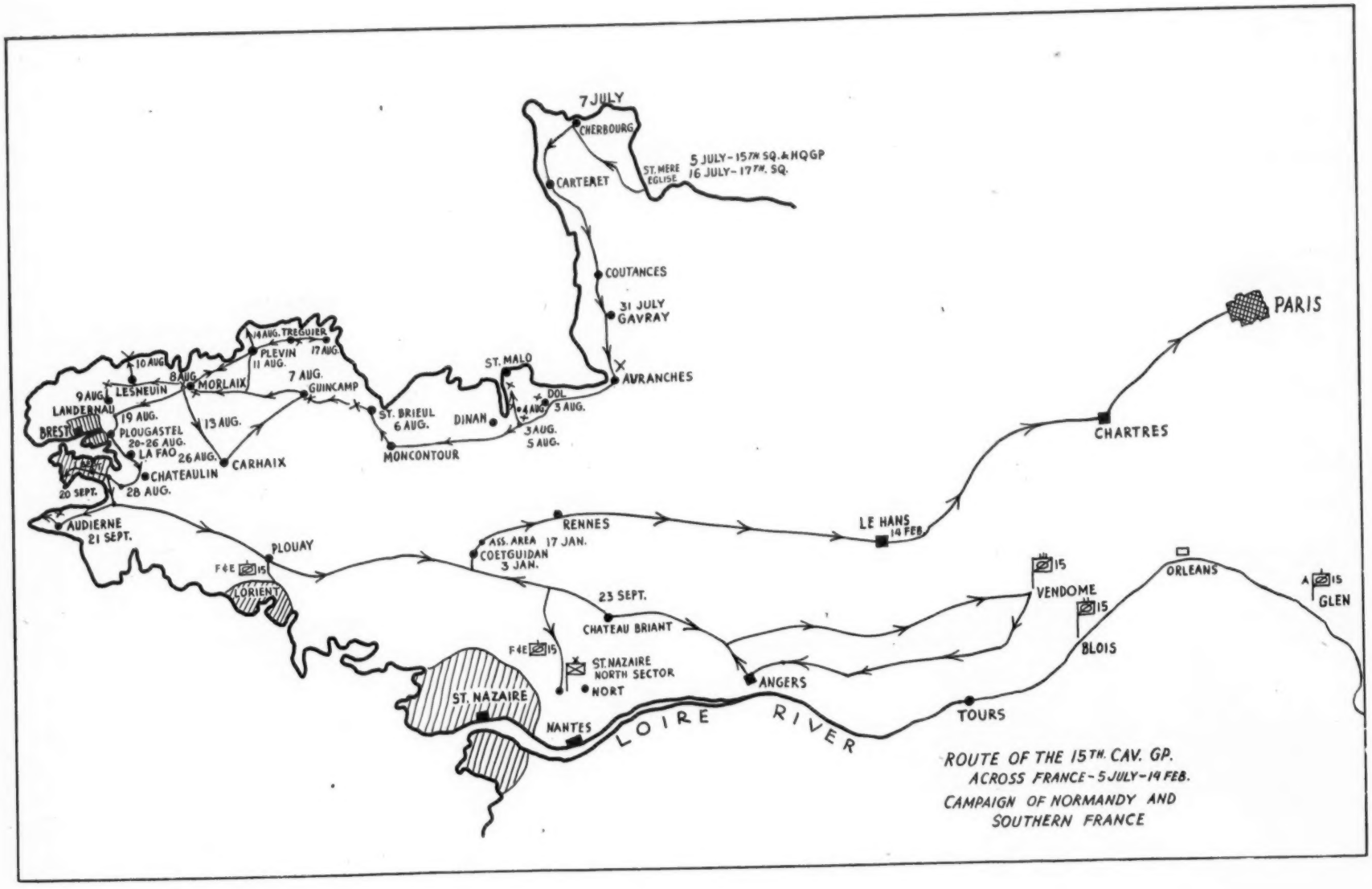


ROUTE OF THE 15TH. CAV. GP.
ACROSS FRANCE - 5 JULY - 19 FEB.
CAMPAIGN OF NORMANDY AND
SOUTHERN FRANCE

15th CAVALRY GROUP

PART I

By August 1, 1944, the First United States Army had apparently broken through the German defenses in Normandy and pushed southward along the western coast of the peninsula. The Third United States Army was assigned the task of exploiting this break-through. The 15th Cavalry Group was part of the special task force assigned the mission of cutting across the northern part of the peninsula to secure the vital bridges along the railroad from Brest to Avranches. This is the first of a series of articles covering this action, written by officers of the 15th Cavalry Group, to be published in The Cavalry Journal.

An Ambush in Brittany

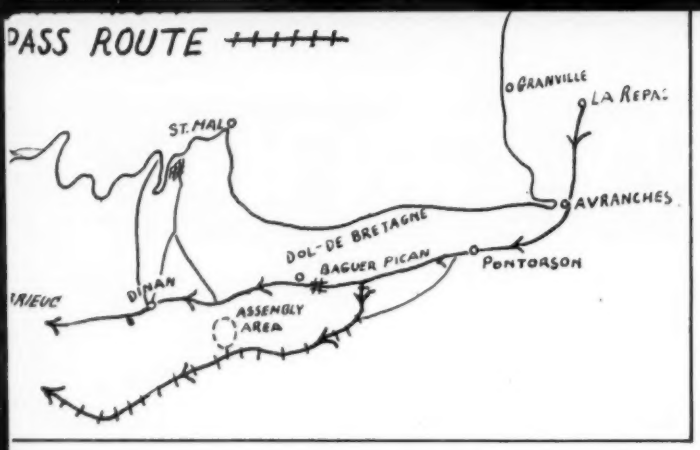
AS final plans were made for the break-through after the capture of the Cotentin Peninsula, one obvious problem was presented: this was the Brittany Peninsula. Since access to the planning and strategy of the high level staffs was not available, the problem is considered here from the view of the average officer who was engaged in the campaign.

Unless another amphibious operation were to be conducted on the Brittany shores, upon breaking out from the Normandy Peninsula, some forces must fan out to the west as well as the east. The size of the forces would, of course, be determined by the strength of the enemy in the Brittany Peninsula, the state of his organization and defenses, the amount of mechanization, and other factors. Later information indicated a decrease in the German military effectiveness in the peninsula, as evidenced by the fact that the initial assault force consisted of only the VIII Corps, comprising the 4th Armored, the 6th Armored, and the 83d Infantry Divisions, and Task Force A.

Task Force A, highly mobile and strong in armament and armor, was conceived by General Patton, Commanding General, Third Army, only a few hours before it was born. It was given to the VIII Corps, under General Middleton, who designated General Earnest as its commander. Its formation was undoubtedly the result of late information on the status of the enemy strength in Brittany, which indicated that the northern half of the peninsula was being drained of troops and armor proceeding rapidly to Brest. The one place still expected to be defended was St. Malo. Accordingly, it seemed a good gamble to try to cut the northern half of the peninsula with a comparatively small, highly mobile task force.

The 15th Cavalry Group was assigned to Task Force A on August 1, 1944. In addition to the 15th Group, the task force consisted of Headquarters, 6th Tank Destroyer Group; the 705th Tank Destroyer Battalion; C Company, 159th Combat Engineers; and an engineer Bailey Bridge company. The task force assembled at La Repas, about 20 kilometers north of Avranches, on August 2.

The mission given to Brigadier General Herbert Earnest (now Major General), was to proceed at the greatest possible speed to the vicinity of Brest, along the northernmost route through Avranches, Pontorson,



Dol-de-Bretagne, Dinan, St. Brieuc, Guingamp, and Morlaix, and drop off small guard detachments to remain at each town until they could be relieved by elements of the 83d Division. A later mission, assigned the afternoon of August 2, required that one troop be detached when the column reached a point south of St. Malo, to make a reconnaissance to determine the extent of defenses and enemy activity around the city. This troop was to rejoin the column upon completion of the mission.

Information from higher headquarters indicated that the 6th Armored Division was advancing on the same route that we were to follow as far as Dinan. After taking Dinan they would turn south and we could therefore expect the route to be clear to that point.

An assembly area midway between Dol and Dinan was to be used by the 6th Armored Division on August 2-3, and was designated as the assembly area for Task Force A for the night of August 3-4. The advance to the assembly area was to be made in one column, in the following order of march: 17th Cavalry Reconnaissance Squadron; Group Headquarters, 15th Cavalry Group; 14th Cavalry Reconnaissance Squadron; Headquarters TFA; 705th TD Battalion; Company C, 159th Engineers; Bailey Bridge Company and Trains; Reconnaissance Company, 705th TD Battalion. Upon reaching the assembly area, final orders were to be issued and troops deployed to advance on the first objective, the bridge at St. Brieuc.

The head of the column passed the IP at 0130, August 3. During the entire march the group commander rode near the head of the column, and led the advance. The order of march of Troop C, the lead troop, was as follows: 3d Platoon, 1st Platoon; Troop Headquarters, 2d Platoon; Troop E (assault guns).

Just north of Avranches the first enemy activity was encountered when we underwent considerable bombing and strafing by hostile planes. We suffered no losses, but a bomb crater in the middle of the road, plus extremely heavy traffic, held up the column for about an hour and a half. Finally Avranches was cleared and the rate of march gradually increased.

Orders received by the group commander had emphasized that speed was of the utmost importance. This was to be a race to Brest with stripped saddles. In view of that, and the delay at Avranches, coupled with the fact that the route was considered clear, the Group CO pushed the column along at a speed between 35 and 40 miles per hour. At about 0620, feeling that this speed was excessive, the commanding officer of Troop C called for the leading platoon to slow down the column.

The leading platoon cleared Baguer-Pican, a tiny town about 4 kilometers east of Dol, from which the highway led a long hill flanked on each side by ditches and the usual hedgerows. At the bottom of the hill was a bend in the road with woods on either side. The point, with the group commander in the lead, rolled down the highway at a speed of 35 to 40 miles an hour and was followed by the remainder of the platoon, which kept about 50 yards between vehicles.

As they reached the wooded bend of the road at about 0630 they hit an ambush which apparently was composed of a heavily defended road block, AT guns, mortars and machine guns, and which had dismounted flankers on each side of the road for several hundred yards. The group commander's jeep was hit and burst into flames. The platoon leader was fatally wounded. Those men not killed in the first burst of fire jumped from their vehicles into the ditch. In the resulting confusion it was extremely difficult for the troop commander to regain control. Enemy machine-gun fire raked the column as far back as the Headquarters Platoon. Getting the vehicles off the road was impossible.

The only thing to do was to extricate Troop C, and try to recover the wounded, most of whom had made it to the ditches but were pinned down by fire. The assault guns moved to the crest of the hill and opened fire on the suspected enemy position with smoke and HE. Troop A, which followed Troop C in column, was ordered to cover Troop C while it pulled out and reorganized. The 3d Platoon was short all but three men. At 0900 orders came from task force headquarters to withdraw. The entire column would by-pass to the south on an alternate route.

The exact strength and composition of the enemy force was never determined. The group commander and 4 men were not recovered. It was later found that they had been wounded, captured, and held on the Island of Jersey until released in May 1945.

Later, we learned that the 6th Armored Division had turned off beyond Pontorson and taken a more southerly route. Had this information reached us in time, there would have been a different story to tell.

There is no new significant lesson to be pointed out from this action. It emphasizes strongly the vulnerability of a road-bound mechanized column to an ambush, and illustrates the necessity for a tactical march formation, even when it is believed that the route of advance is clear. Had Troop C been preceding the main body by a half a mile in the approved formation for an advance guard, there would have been enough warning to allow the squadron commander to dispose his squadron in an effective manner, and for the group commander to employ some reserves. It also brings out the fact that the place for the group commander is *not* up with the point corporal.

Group Supply Problems

by Major Glenn E. Font

ON August 1, 1944, the group received orders to gather up 6 days' emergency rations, gasoline and oil for 250 miles, as much ammunition as it could carry, and to pick up and attach "hedgerow plows" to 4 M5A1 light tanks in each tank company.

As sometimes happens, telephones would not work and radio to higher headquarters bogged down, so many Paul Revere rides took place during the night of August 1-2. Ammunition releases had to be obtained, road priorities had to be arranged for, and rations had to be trucked in from Omaha Beach prior to our rendezvous near Avranches with the units that were to make up Task Force A.

By working supply personnel of both squadrons night and day from August 1 through August 3, all necessary supplies were obtained and in readiness for the jump-off, scheduled for soon after midnight on August 3.

As the supply trains moved through Avranches shortly after the jump-off, the column was dive-bombed and strafed by a small ineffective group of enemy fighter-bombers, but there were no casualties.

The problem of re-supply came up the first night after the break-through. In our first engagement with the enemy at Dol, France, we had lost a number of vehicles, men and equipment. Replacements were needed immediately, as our MSR (main supply route) was stretching rapidly, and was none too safe to travel.

On the night of August 3-4 we ran our first supply train back through territory known to be infested with enemy troops who had been squeezed out on each side of the MSR during our speedy advance that day. To defend the train one jeep mounting a .50 caliber machine gun was used in the point, followed by one M8 armored car, and the supply trucks with a .50 caliber on every third truck. (We had not received all of our .50 caliber mounts at that time.) Near the middle of the train was a half-track with one .50 caliber and two .30 caliber machine guns. The rear of the column was protected by an M8 armored car.

At Pontorson the trains were forced to split up because the various supply dumps were located at different points. The ammunition trucks went all the way back to Omaha Beach to pick up 76mm ammunition for the TDs attached to the task force; the replacement depot for personnel was at Granville; gas and oil was at another place; and replacement vehicles at still another.

After the trains reassembled in the vicinity of Pontorson and returned to the combined trains bivouac (TFA rear), the cavalry decided to run all future supply training during daylight hours to avoid the risk of night ambush and night strafing. The enemy air force was afraid to come up during the day when our air forces controlled the skies.

Supply began to function more or less normally, but day by day TFA was getting farther and farther away from the Third Army dumps. This caused more supply difficulties. Our trains had to go all the way back to the beaches for some of the supplies. During the time artillery ammunition was rationed, just prior to the fall of Brest, it was not uncommon for our ammunition trucks to travel a 500-mile round trip for certain types of artillery ammunition.

The situation was relieved somewhat when a small beachhead was established at St. Michel en Greve and several LSTs anchored with class I and III supplies. This shortened the supply lines for our most urgently needed items: type K and 10-in-1 rations, and gasoline.

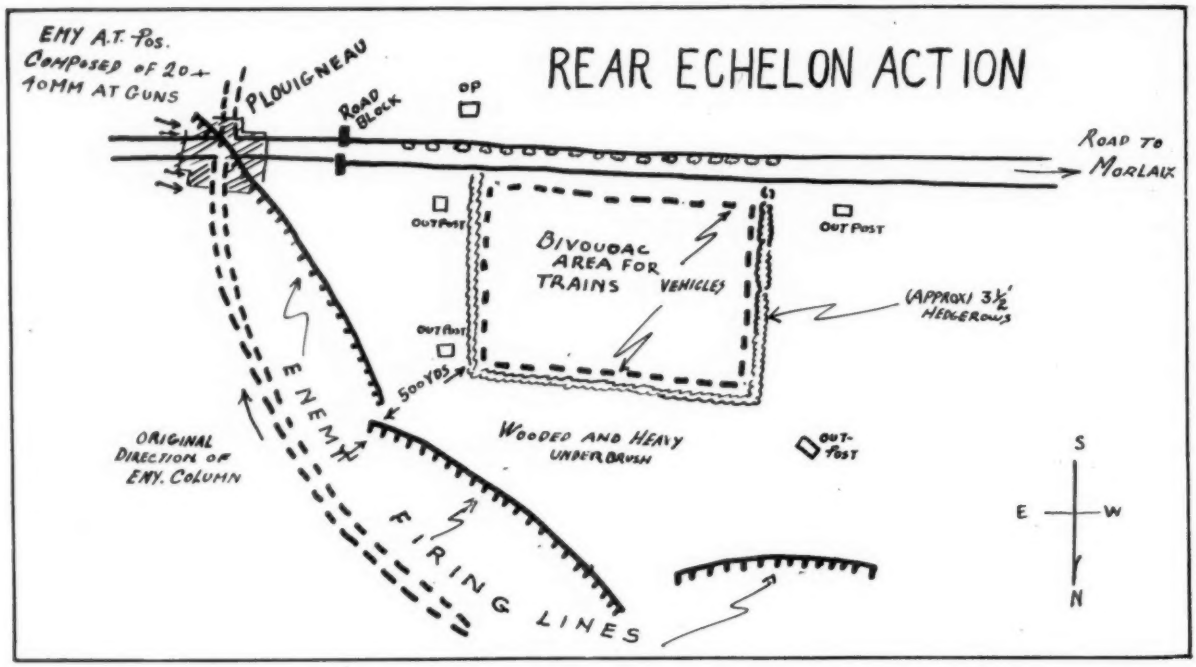
Although the supply was difficult, and nearly impossible at all times, the men were fed, the vehicles were filled, and throughout the operation weapons were never short of available ammunition in the 15th Cavalry Group and attached squadrons.

Trains Have to Fight Too

by Captain Clark R. Larson and Captain Frank C. Horton

WHEN we left Avranches, unit trains in Task Force A were combined to afford better protection from both air and ground attack. With no platoon or section from the combat element attached to our trains, it became necessary to furnish our own protection.

Care was taken to distribute the more heavily armed vehicles along the column, and put an adequate number of vehicles carrying antiaircraft weapons with the lead and tail vehicles. These consisted mainly of half-tracks, two light tanks, which were in each squadron



"A defensive firing line was set up around our area, covered wagon style . . . we returned the fire with all we had."

maintenance section, and three armored cars, which mounted .50 caliber guns. At that time very few of our trucks were equipped with ring mounts.

The first night, before we bivouacked near Epinac, an advance party left the train convoy ahead of time to pick out a suitable area. We continued this practice to make sure that the column could get off the road and go into bivouac under cover as soon as possible, in order to lessen the chances of an air attack upon a halted column. Immediately upon closing in the area, vehicles were camouflaged and security posts organized. We used the tanks, half-tracks and armored cars to establish outposts at strategic points so situated that all-around security would be provided. Crew members rotated the guard duty, but always remained in pairs. Local security was set up within the immediate vehicle area. This became SOP for our train security while in bivouac.

On the morning of August 9, we were bivouacked about 8 miles east of Morlaix, near Plouigneau. The 15th Cavalry Group trains had been detached from the rest of those belonging to the task force. About 0700 we were attacked by a German force moving south across a highway over which the task force had passed only the night before. Because of a heavy fog, we were at first unable to determine the strength and dispositions of the enemy force. Later it was found to consist of more than 200 men and light horse-drawn antitank weapons.

The attack began with harassing small-arms fire and an occasional mortar shell. Fearing that the enemy wanted our supplies more than they did us, our first interest was to save our vital gasoline, ammunition, and rations. We immediately attempted to move out, but could not because both entrances to the bivouac area were covered by antitank fire.

A defensive firing line was set up around our area, covered wagon style, from which we returned the fire with everything we had. Headquarters was notified by radio, and we were told that help was on the way.

Lieutenant Hall of Troop B, 14th Squadron, brought his reconnaissance platoon through Morlaix and arrived during the fire fight. After reconnoitering he decided to attack by fire in an attempt to neutralize the enemy long enough for our train to evacuate the area. His attack was repulsed but confused the Germans, who switched some of their 20 and 40mm antitank weapons.

Captain Herman M. Marlow, CO of Headquarters Troop, 17th Cavalry Squadron, mounted an armored car and made a dash for the highway leading to Morlaix. He got through successfully and raced on to the outskirts of Morlaix where he contacted a tank platoon from F Company, 14th Cavalry. Details of the situation were given the platoon which informed headquarters of its anticipated actions, and then turned back and attacked full speed up the road, firing as it came.

It knocked out the antitank positions which had been set up at the cross road in Plouigneau, and with its tanks established a road block between us and the enemy. The addition of the tank fire power afforded us the opportunity to move out of the area and to rejoin the remainder of Task Force A trains, situated on the outskirts of Morlaix.

Seizing Strategic Installations

Anonymous

TASK FORCE A had an initial mission of securing key bridges along the Brest-Rennes railroad line, and a secondary mission of mopping up isolated enemy troops in the northern Brittany Peninsula. Without this rail line the port of Brest had little value, since if damaged, several of the bridges were of such length and construction as to require weeks to repair. The mission was ideal for cavalry since it required mobility, surprise, and strong shock action for quickly overcoming the anticipated resistance.

There were three bridges at St. Brieuc, two at Guincamp and three at Morlaix. The FFI already had taken St Brieuc by the time Task Force A reached its outskirts on August 6, 1944, and all bridges were found intact. As in St. Brieuc, it was found that the Germans had fled Guincamp in great confusion without blowing the two small railroad bridges, and that the FFI was guarding them.

On the night of August 7 the 17th Squadron was given the mission of spearheading the drive on Morlaix, where the three railroad bridges were to be seized. General Earnest stressed the importance of taking the largest bridge intact. It was over a defile 250 feet deep and 200 yards wide. Because of the lack of proper construction equipment, destruction of this bridge would paralyze the Brest-Rennes railroad line indefinitely.

Since resistance so far had been scattered and disorganized, the squadron commander decided to attach to Troop A, which was to lead the squadron, one platoon of light tanks, one platoon of assault guns, and one platoon of men in half-tracks from Troop C for dismounted action. This gave the commanding officer of Troop A a powerful punch with which to overwhelm any road blocks.

The order of march was a reconnaissance platoon, a light tank platoon, troop command section, an assault gun platoon, the dismounted platoon in half-tracks, and the other two reconnaissance platoons.

At daylight August 8 Task Force A left its assembly area near Guincamp, France, and headed for Morlaix on Highway N12. At 0900, just east of Plouigneau, two 40mm guns were located under a railroad trestle, covering the highway. The point immediately pulled into defilade and opened fire. The tank platoon leader came forward and sized up the situation with the reconnaissance platoon leader. Since there were no guns larger than 40mm antitank, it was decided to run two tanks abreast down the road, assigning one to each gun. Six men were dismounted to cover the tanks. The two 40mm guns were quickly knocked out, and the remaining three tanks and the dismounted platoon in half-tracks continued the march.

Dismounted German troops were encountered immediately on the other side of the railroad trestle. The tanks moved up the road firing all guns, and within 5 minutes, more than 70 Germans had been taken prisoner. The tanks kept moving, and within two more minutes ran into the rear of an enemy column and began shooting it up. This column was reported to higher headquarters, which ordered the tanks to halt and display panels marking their location. A call was put in for planes, which arrived within half an hour and began strafing the enemy. At 1030 the column was ordered to advance, and although everyone was on the lookout for the enemy column, it was not contacted again.

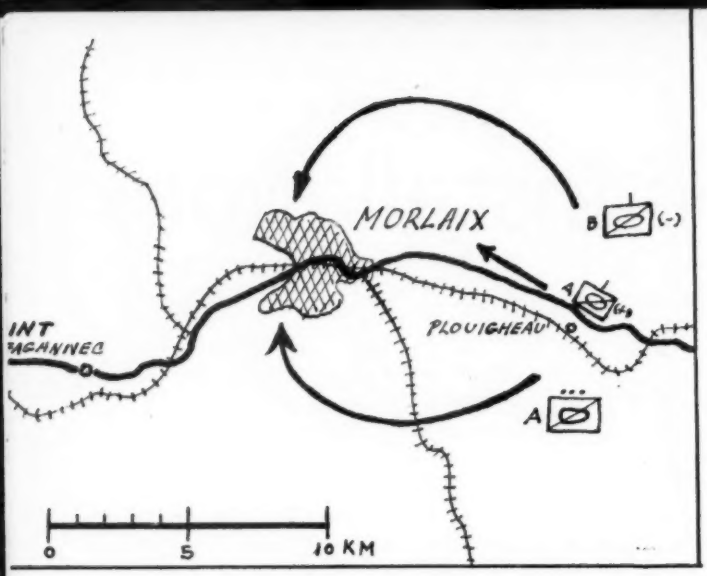
As Troop A passed through Plouigneau, the troop CO was ordered to try to get a platoon into Morlaix from the south along a road that ran parallel to and south of Highway N12. At the same time Troop B, less one platoon, was ordered to move by secondary roads and enter Morlaix from the north. Because of minefields and large antitank obstacles, however, neither Troop A nor Troop B was able to enter the town.

About noon, just as the lead bantam came in sight of the outskirts of Morlaix, it spotted a 20mm gun under a railroad trestle. The bantam opened fire, knocked the gun out, and set it on fire before the Germans could man it. Men of the two lead bantams dismounted and advanced slowly alongside an armored car. This time they spotted a 40mm gun under a second railroad trestle 200 yards down the highway. Just as the Germans were loading the 20mm gun, the armored car opened fire and knocked it out. At this time machine-gun and small-arms fire opened up and pinned down the dismounted men.

The CO of Troop A came forward and reconnoitered. Dismounting part of his 3d Platoon and Troop Headquarters, he had them set up in hedgerows about 200 yards on either side of the column. He then called forward the platoon of tanks and the dismounted platoon of Troop C.

The tanks moved down the road two abreast, followed by the dismounted platoon. They engaged the enemy in a chateau on the right side of the road and along the railroad embankment. The squadron commander realized that the enemy not only had been alerted but was in some strength, and that the bridge might be blown. He called the CO of the attached infantry company, ordered him to move to the railroad embankment and follow it until he reached the big railroad bridge, which was to be held at all costs.

Within 10 minutes the infantry company was moving down the road and by the time it reached the railroad



embankment, Troop A had captured over 270 enemy in and around the chateau and had knocked out the machine-gun positions along the railroad embankment.

Troop A reorganized immediately, mounted up, and moved into town. Sniper fire from buildings along the street caused men in the bantams to take cover, and the tanks were called forward to fire on the buildings. By this time the enemy was surrendering so quickly and in such numbers that Troop A had all it could do to handle them.

The infantry company met but little opposition and soon had the bridge firmly secured. By 1500 all opposition had ceased and more than 600 Germans had been captured at a cost of two men wounded and no vehicles knocked out.

With a complete lack of information concerning the enemy, it was almost impossible to make a planned and coördinated attack. Our situation, however, was that the enemy troops were disorganized, had very little or no communication, and knew as little about the American forces as the Americans knew about them. This made it advisable for the lead troop to become a small task force, to enable it to knock out the enemy before he could become organized. This proved so satisfactory that it was made SOP for the entire Brittany Peninsula.

The lesson to remember, however, is that when moving against scattered enemy resistance and when neither side knows the whereabouts of the other, the head of the column should be loaded with a hard wallop, in order to overwhelm the enemy before he can organize any resistance.

Cavalry Secures a Beachhead

by Major W. E. Hudson

AT the base of the Normandy Peninsula enemy lines had been punctured and the Allied exploitation phase was in full progress. With advance elements in the vicinity of LeMans, the bulk of the Third Army forces were moving rapidly on the epic sweep through France toward Paris.

The 6th Armored Division, also under Third Army control, had swept westward from Avranches, plunging through the Brittany Peninsula to the outskirts of the port of Brest. The enemy lines, though penetrated, battered, and falling back, were still cohesive, and strong counterattacks were being pressed in the vicinity of Mortain with the ultimate objective of reaching Avranches. This would sever the supply lines of the break-through forces, rendering them immobile and subject to destruction. Should Avranches have been lost, the Allied counter move would have been the establishment of a supply line from some port or beachhead along the northern coast of the partially liberated Brittany Peninsula.

The 15th Cavalry Reconnaissance Squadron, part of Task Force A, which had been mopping up along the northern coast of the Brittany Peninsula since August 3, had just completed a successful day's work. During the morning Troop A, with a platoon of assault guns from Troop E, had completely surprised an enemy force in the vicinity of Plougerneau, taken over 300 prisoners, inflicted heavy casualties and captured many weapons. Other troops of the squadron, not as fortunate as Troop A, had spent the days sweeping their assigned zones. At 2000 the squadron was assembled in bivouac in the vicinity of Lesneven to re-gas and prepare for the following day's mission.

At 2230 on August 10, the commanding officer of 14th Cavalry Reconnaissance Squadron received orders to proceed to St. Michel-en-Greve and to secure the beach area and high ground against enemy attack by 1200, August 11. That afternoon, at least three cargo ships of LST class were scheduled to discharge their supplies across the beaches.

A map study disclosed that the shortest main route from Lesneven to the beach area was Lesneven-Landivisiau-St. Theogonnec-Morlaix-Lannieur-Plastin-St. Michel-en-Greve, a distance of some 70 kilometers. This route, however, would channel the entire squadron on one road, and it approached the beach area from

a flank. Should this access be blocked, valuable time would be consumed deploying and by-passing such an obstacle. Time had become precious, so an alternate was selected.

The squadron would proceed in column to Morlaix, then eastward along the Morlaix-Plougerneau-Belle-Isle-en-Terre highway. Upon reaching suitable secondary routes, south of the beach area, the securing forces would turn north along roughly parallel routes, and proceed in deployed formation to the objective. Three routes along secondary roads were selected for further map study; their pattern was desirable, one route leading to the left flank, one to the center, and the remaining route to the right flank.

A reconnaissance troop with an assault gun platoon attached was assigned to each route. Squadron headquarters, with the light tank company, was to follow the center route behind the reconnaissance force. Objective areas covering the commanding ground around the beaches were also allotted. The necessary order and instructions were issued to the assembled troop commanders at midnight, August 10, and at 0100, August 11, the squadron moved out.

During the initial hours of the road march, intense ground fog slowed the squadron to 5 to 8 miles an hour because of the poor visibility. Road guides had been posted from the leading elements and proved invaluable in preventing elements of the column from taking the wrong turns at critical points.

The over-all distance to the objective had been increased to between 85 and 90 kilometers by the selection of an alternate route. Morlaix was reached and passed in the first light of dawn. A few kilometers farther a halt was called to eat breakfast and receive last minute instructions. The column moved out on the final phase at 0800.

Inasmuch as the turn-off points from the main east-west route were about three kilometers apart for each reconnaissance troop, the head of each troop column turned north at nearly the same moment, thus moving the squadron column into a line of troops in column formation with the squadron command element following the center troop. Because of the condition of the secondary roads, progress in this deployed formation was consistent but not rapid. Security teams put out by each flank troop were nevertheless hard put to maintain the pace being set by the main body.

Upon nearing the beach area reports of undefended road blocks were received, giving the first indication that the area was either free of enemy or that he had pulled his defense into a smaller ring. Extensive minefields were discovered, but again no enemy fire was received.

The reconnaissance troops searched for by-passes around mined road blocks, and through aggressive action the reports of "on objective" were soon forthcoming. No enemy were encountered although in addition to the minefields, road blocks and barbed wire entanglements, and heavy coastal guns in hillside pillboxes sited to cover the approaches to the beaches were discovered along with adequate numbers of tetrahedron type steel obstacles.

After securing the high ground and reconnoitering the immediate vicinity, including flanks, the cavalry mission was completed. That supplies were being unloaded across the beaches by 1600 on August 11th is sufficient testimony to the success of the operation.

(To Be Continued)

The story of the 15th Cavalry Group will be continued in the November-December, 1945 issue of The CAVALRY JOURNAL in a series of articles. Stories and authors in the series are as follows:

MECHANIZED CAVALRY IN DISMOUNTED ACTION ..... ***by Major William R. Kraft***

MOPPING-UP AN ENEMY POCKET ..... ***by Lt. Colonel Garrett J. Dobbins***

ASSAULT GUNS IN DEFENSIVE ACTIONS ..... ***by Captain Edwin E. Lassen***

CAVALRY AND INFANTRY AT ST. MALO, ***by Lt. Colonel Garrett J. Dobbins and Captain Thomas Fiori***

RECONNAISSANCE OF AN ENEMY POSITION ..... ***by Captain James N. McGuire***

THE 17TH SQUADRON HOLDS A RIVER LINE ..... ***by Major Morton McD. Jones***

THE GROUP RELIEVES AN ARMORED DIVISION ..... ***By Major Herman M. Marlow***

BRITISH-AMERICAN CONTACT ..... ***Anonymous***

THE 15TH SQUADRON HOLDS A RIVER LINE ..... ***by Major W. E. Hudson***

A NIGHT PATROL IN THE SIEGFRIED LINE ..... ***by Captain Norman F. Rolston***

Mechanized Cavalry Grou

AS the XIX Corps, spearheaded by the 113th (Red Horse) Cavalry Group, drove generally east through Belgium and into Holland, the first obstacles of one of the world's most formidable defense systems were encountered and outflanked. The Corps crossed the Maas River at Liege, Vise and Maastricht, then struck northeast to beyond Gulpen and Valkenburg, Holland, thence north to Sittard, Holland, and then east to Gilrath, Germany. In this area the long drive lost momentum. The first defenses of the Siegfried Line had been reached, and the left flank of the First U. S. Army was left uncovered. Thus the stage was set for the forthcoming rôle of the 113th Cavalry Group.

In one of the longest cavalry dashes in modern history, the Group had fought its way from the Seine River to Maastricht, a distance of 225 miles in 9 days. In conjunction with the 2d Armored Division and the 30th Infantry Division, it had cleared the area bounded by Maastricht, Valkenburg, Heerlen and Sittard, and elements of the Group had crossed the German border.

On September 19, the Group CP was at Hoogeruts. The Group then was comprised of the 113th Cavalry Reconnaissance Squadron, commanded by Lieutenant Colonel Allen D. Hulse, which was assembled southeast of Maastricht; also Company B, 82d Engineering (C) Battalion, less two platoons. Company A, of the 803d TD Battalion, was in Corps reserve. Four days earlier, the 125th Cavalry Reconnaissance Squadron, commanded by Lieutenant Colonel Anthony F. Kleitz, had been attached to the 30th Infantry Division to protect the division's right flank, and to maintain contact between it and the left unit of the VII Corps. For this assignment the squadron, less Troop B, had been reinforced by two platoons of engineers, and a TD company less one platoon.

Mission

About midday, the Group commander received orders to relieve elements of the 2d Armored Division by moving north and taking over a portion of the Corps' left flank along the line Berg-Sittard-Gangelt, between the Maas River and the Holland and German border. (See sketch No. 1.) The Group was to be reinforced by a light tank battalion (less one company), an engineer combat battalion, and a company of TDs.

For this key defensive mission, with its wide frontage and terrain which favored the enemy, it was directed that maximum use be made of road blocks and mine fields.

Plan

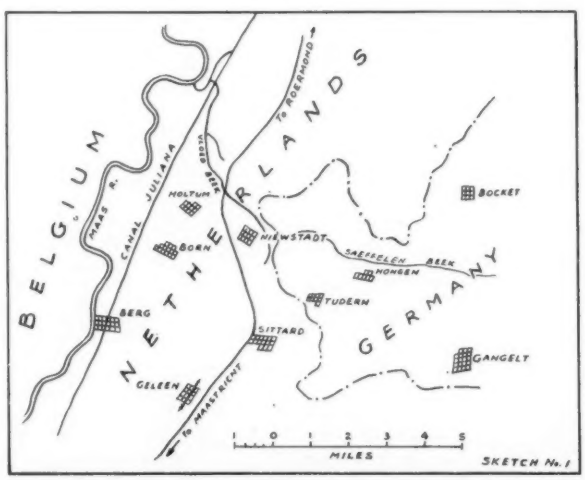
The Group commander's plan for executing the defense was as follows: Employed on the west would be the 113th Cavalry Reconnaissance Squadron (less Troop A and one platoon of Company F), and reinforced by a platoon of Company A of the 803d TD Battalion, and by Company B of the 246th Engineer Battalion. Employed on the east would be the 744th Light Tank Battalion, commanded by Lieutenant Colonel Richard J. Hunt (less two companies), and reinforced by Troop A, 113th Cavalry Reconnaissance Squadron; Company C, 702d TD Battalion, less one platoon; and by Company C, 246th Engineer (C) Battalion. The engineer company attached to each unit would be used as infantry, and engineering work would be the duty of the engineers in the Group reserve. Group reserve was comprised of the 246th Engineer (C) Battalion (less two companies); Company B, 82d Engineer (C) Battalion (less two platoons); one company of the 744th Light Tank Battalion, and one platoon of the 702d TD Battalion.

Orders were to dig in armored vehicles, dismount automatic weapons, establish mortar positions, and to prepare range cards for all fixed weapons. (See sketch No. 3.)

Considerable difficulty had been encountered in assembling such a conglomerated force, and darkness came before the relief was completed on the right. Fortunately, the 2d Armored Division elements were able to remain in position until well into the following morning. In addition the 92d Armored Field Artillery Battalion was ordered to support the Group for 8 days.

On September 20, engineers with bulldozers began to dig in the armored vehicles for hill defilade. Work was also begun to establish road blocks, mine fields, and other obstacles. Aggressive reconnaissance then was initiated to the north to establish contact with the enemy.

The following day, September 21, orders were received from the XIX Corps to extend the Group's sector



Map 1

ψ in Defense

by 1st Lieutenant Robert M. Batley*

of responsibility to the east to include the town of Gangelt, Germany. Company G, 66th Armored Regiment, of the 2d Armored Division, and Company C, 234th Engineer (C) Battalion (which was mounted on tanks and had been trained to fight as infantry), were attached to the Group for defense of the extended sector.

In its new sector, the 113th Cavalry Group, reinforced, was defending more than 9 miles of the Corps' flank, thus causing wide intervals between strong points.

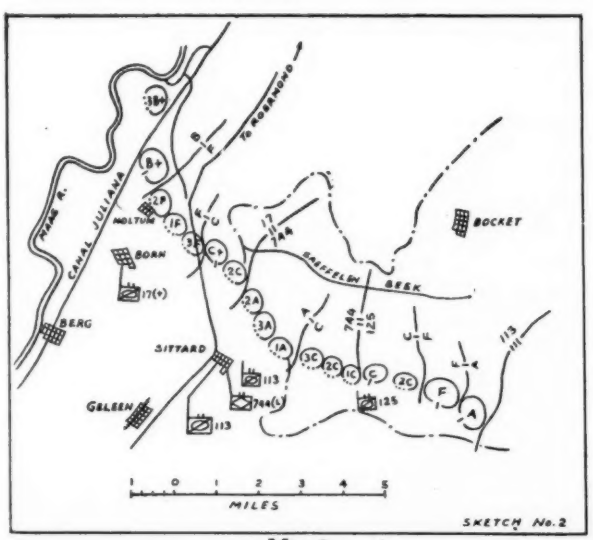
XIX Corps was preparing for the operation to breach the Siegfried Line, on September 29. As a diversionary effort, the 113th Group was ordered to assume an offensive attitude on September 28 with special emphasis on its left, along the Maas River toward Roermond. Prior to that time, the 246th Engineer (C) Battalion and Company A, 803d TD Battalion, were to be detached.

Reconnaissance

Before the order was received, reconnaissance had shown Nieustadt was strongly held by the enemy, but that west of the town, the defense was lighter. East of it in Germany the enemy was disposed generally along the high ground north of Saeffeler Beek. Some indications of withdrawal had been noted on the west, although in general the enemy appeared to have considerable artillery support and to be capable of strong resistance.

The 744th Light Tank Battalion was assigned the main effort, and was reinforced by the remainder of the medium tank, and the mounted engineer companies.

*113th Cavalry Group (Mecz).



Map 2

The 113th Squadron simultaneously was to execute a mounted harassing action in its sector.

Attack

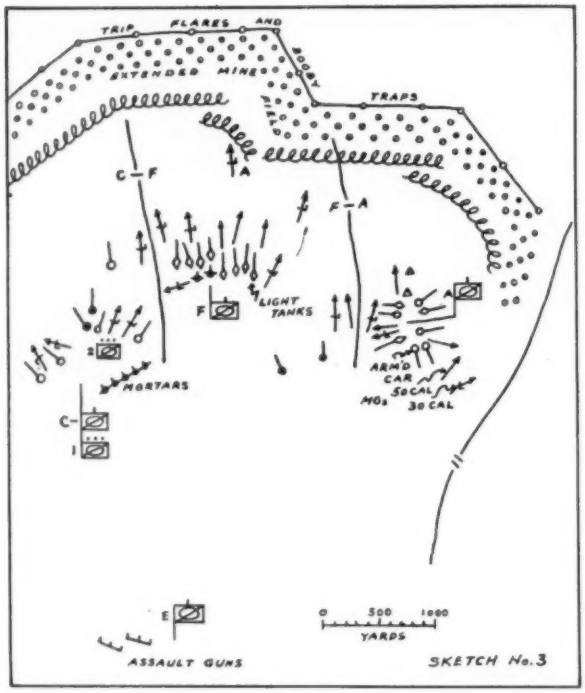
The attack opened as planned at 0700 hours, September 29 and progressed well to the left. Niewstadt was taken, and by night a line running generally along the Vloedbeek Canal had been established. By this time the 113th Squadron had forced a bridgehead over Saeffeler Beek, near Isenbruch, and was holding it in the face of heavy artillery, mortar, and small-arms fire. The following day the Group was attached to the 29th Infantry Division, for its general offensive October 2. It was planned to have the 113th Squadron enlarge its bridgehead, then wheel to the northeast; the 744th Tank Battalion to follow the 113th through the bridgehead, then attack north and northeast; the 125th Cavalry Reconnaissance Squadron was to rejoin the Group on September 30 to follow the 744th Tank Battalion, and then operate to the left of the Group, with its flank on the river. (Company C, 66th Armored Regiment, to be replaced by Company C, 747th Tank Battalion.)

The attack was launched early October 2 and was resumed again the next day. The 113th Squadron reached Saeffeler Beek, opposite the town of Havert, but the planned objectives could not be accomplished because of losses in personnel and vehicles. So on October 3, the general offensive effort of the division was discontinued. The following night the Group resumed the defense of its sector, extending 8 miles from Gangelt to Roosteren. (See Sketch No. 1.)

Return to Defense

The three units of the Group now were disposed abreast from the right in the following order: 113th Cavalry Reconnaissance Squadron, 744th Light Tank Battalion, and the 125th Cavalry Reconnaissance Squadron. One reconnaissance troop of the 113th Squadron was attached to the 744th Tank Battalion. The Group reserve consisted only of one platoon of tanks of Company F, 125th Squadron. Each unit was able initially to keep a small reserve of one platoon, but later it was slightly increased by regrouping. Artillery support was excellent, varying from two to 5 medium and light battalions. The assault guns of all three units proved invaluable in indirect fire rôles, especially since artillery ammunition was limited. Detailed defensive fires of all types were prepared; and extensive mine fields and wire obstacles were erected by supporting engineers. (See sketch No. 2.)

Aggressive patrolling was SOP, but because of the enemy's excellent observation this activity was limited to the hours of darkness. Much information concerning the strength and dispositions of the enemy was gained



Map 3

by patrolling and by the use of OPs during the day, and listening posts at night.

Early in November, the 17th Cavalry Reconnaissance Squadron, 15th Cavalry Group, was attached to the 113th Cavalry Group; and the arrival of the fourth unit made it possible for the Group commander to initiate rotation for troops. The 17th Squadron relieved the 125th Squadron which, after a week in reserve, relieved the 113th Squadron. Before the 744th Tank Battalion could be relieved, however, the Guards Armored Division of the 30th British Corps took over the sector, and November 12 the defensive mission of the 113th Cavalry Group came to an end.

Comments

As a summary of the weeks of defense in the vital Sittard area, it is well to note, first, that a mechanized cavalry group, with reinforcement and support, was able to defend a 9½-mile line for 6 weeks; second, that the experience and ability of cavalrymen in dismounted patrolling kept the enemy well back of his MLR, and all but nullified the efforts of his patrols.

The 113th Cavalry Group throughout this defensive action suffered comparatively few casualties, and through rotation, was able to effect maximum rehabilitation under field conditions.

The greatest need during this defensive action was for more ground troops—for use on patrols, for the protection of combat vehicles, and for other purposes.

Lastly, it was shown that in a situation of this kind the organic assault guns of the cavalry are indispensable when used in an indirect fire rôle

Yanks Met Cossacks in Historic Link-up*

(Sergeant Ed Cunningham, Yank *staff correspondent was with the First Army to report the meeting of the First Army's 69th Division with the 58th Guards Division of Konev's First Ukrainian Army.)*

A 28-MAN, 6-jeep patrol of 69th Division Yanks, under the command of First Lieutenant Albert Kotzebue of Houston, Texas, and his platoon sergeant, T/Sgt. Frederick Johnston of Bradford, Pennsylvania, and a Russian cavalry patrol made the first link-up between the Eastern and Western Fronts. The meeting took place on a hill outside the village of Zauwitz just before 1330 hours on April 25.

The jeeps roared up the hill smack into the middle of a group of hard-riding Cossacks who were patrolling the area in search of stray pockets of German resistance. Both units recognized each other so there was none of the confusion that attended later meetings.

The Cossacks detailed a Russian civilian to guide Lt. Kotzebue and his men to where the CG of the Russian division was waiting to greet them on the other side of the hill. Then they galloped off.

The American patrol crossed the Elbe in jeeps ferried on a platform raft and fell headlong into a lively Russian celebration.

A Russian major who spoke a few words of English set the tone of the celebration with a toast. "Today," he said, "we have the most happy day of our lives. The years 1941 and 1942 were a most difficult time. Germany was at Stalingrad. It was the most difficult time of our lives. At that time we do not think of our lives; we think of our country."

Major Fred Craig of Friendship, Tenn., and Second Lieutenant Thomas R. Howard of Mississippi, were in command of the second patrol to meet the Russians. They made contact at 1545 April 25 at Clanzchwitz with a column of Russian cavalry.

The Russians galloped across an open field to meet them, throwing their helmets in the air. Major Craig was ferried across the river and taken back to the Russian corps headquarters to meet the lieutenant general commanding.

The major and his men had two meals with the Russians, one at 1900 and one at 0930 the next morning. Once again there were toasts and mutual greetings. The Russians had several cameramen and correspondents on hand to record the meeting and seemed sorry we did not have any of our own. The general told the major he was sending a message direct to Stalin to inform him of the meeting. The Russians and Yanks fired each other's weapons and criticized them. Red Army men found our M1 too heavy for their taste but liked our carbine and .30 caliber machine guns.

*From *Yank*, June 1, 1945.

WE MET THE RUSSIANS

*by Lt. Colonel Anthony F. Kleitz**

THE war was apparently over for the 125th Cavalry Squadron. It was to be relieved on April 28, 1945, from maintaining an active defense along the Elbe River, where, with the 83d Reconnaissance Troop attached, it had outposted and patrolled part of the west bank in the 83d (Thunderbolt) Infantry Division's sector.

The squadron's future rôle brightened early in the afternoon, however, when it was assigned the mission of contacting the Russians the next day.

Instructions were given by Major General Macon, commanding the 83d Infantry Division to "Contact the Russians with as few casualties as possible. Do not get into any big fights, and by-pass resistance which cannot be easily overcome. A limit of reconnaissance will be given."

Troop commanders were given their final instructions, which included a report on a German division assembly area near Zieko (see map); the latest Russian positions; and possible routes for the mission. Troop A, with a platoon of M24 light tanks and a platoon of M8 assault guns attached, was to follow the Red route, and by-pass to the north if necessary. Troop C, with similar attachments, was to use the White route, and by-pass to the south.

The squadron crossed the Elbe on April 29, and at 0700 Troop C, commanded by Captain Adolph C. Ploehn, left the last infantry outpost at Zerbst, and was on its way.

Troop A, commanded by Captain Samuel M. Lindsay, followed and moved on to Rosslau. Leading the troop column was the 3d Platoon, commanded by Lieutenant Robert O. Bradley, followed by Lieutenant Gibson's platoon of tanks, the 2d Platoon, commanded by Lieutenant Jeremiah J. O'Donnell, a platoon of assault guns and troop headquarters. The assault guns were placed to give either indirect fire or "thicken" the direct fire of the tanks. The 1st Platoon of Troop A served as the rear guard, and if the column was held up, it was to start looking immediately for a by-pass to the north.

Troop A met no resistance until it neared Rosslau, where a small enemy force was covering a mine field on the main road. The enemy withdrew after a sharp fire fight. The 1st Platoon, however, had already discovered a by-pass, and after marking the mines for squadron headquarters, which was using the route, the troop moved into Rosslau. A brisk fight around the railroad station netted 200 German PWs, so a detail was left to guard them until squadron headquarters could take over.

Troop A then pushed on a mile east of Rosslau, where it overran an Allied PW camp and liberated 800 French and British soldiers. Continuing east, it captured 200 prisoners, most of whom were Hungarians, and sent them back to the cage at Rosslau.

The woods were becoming quite dense, and since the vehicles were canalized, Lieutenant Bradley dismounted as many men as possible and had them fan out ahead of the leading vehicle. This slowed down the column's speed to that of foot troops, but it reduced the possibility of an enemy ambush. The tactics paid dividends, because the leading platoon began to round up many Germans who had pulled off the road and were setting up defenses around the numerous *panzersperres*.

Shortly afterwards, the troop overtook a patrol of 10 Hitler Youths riding bicycles, each of whom carried two *panzerfausts*, or parts of a light machine gun. The impatient machine gunner in the lead peep commenced firing and the enemy took cover along the roadside, where a short fire fight ensued. Our fire was lifted, and under the protection of covering guns, the youths, two of whom were badly wounded, were rounded up.

The enemy was alerted by this action, and west of Klieken the leading platoons ran into heavy fire from machine guns and *panzerfausts*. Because of the dense woods only minimum fire could be brought on the enemy, and casualties were heavy on both sides. In a few minutes our casualties were three officers, three enlisted men, two tanks, and one peep. Wounded were recovered under a heavy cannister fire from the attached assault gun platoon.

The resistance was more active than any previously encountered, and it appeared to come from a sizable outpost force at Coswig. Troop A was therefore ordered to withdraw to Rosslau, replace its tank platoon with a fresh one, and then move north and east, to by-pass the resistance believed to be at Klieken and Coswig.

Meanwhile, Company F, less 2 platoons, as part of squadron reserve, had cleaned out a large German military hospital and engineer training post on the northeast edge of Rosslau. After several instances of determined enemy resistance, our tanks rounded up more than 600 PWs.

An SS captain who had two artificial legs was in charge of the hospital. He had locked himself in a room, but when the door was broken in he caused no trouble and asked only to be moved out before the arrival of the Russians. He remained in charge, however, while our troops moved on.

A German lieutenant was captured who stated that his tank and crew were at Thiessen and wished to surrender. He said, however, that between us and his tank were German soldiers who would not let Americans pass. This incident was climaxed the next day when

*Commanding 125th Cavalry Squadron.

one of our medical half-tracks took the wrong road in the dark, and ended up in Thiessen. It returned with a Panther tank and crew, and about 100 willing German PWs. The tank was full of ammunition and gas, and in excellent running condition except for one motor which missed occasionally. The Panther obviously had seen hard action—it was heavily scarred from battle, and rings on its gun barrel indicated a bag of 7 Allied tanks and 5 Allied antitank guns—a very fair score.

In the meantime Troop C had broken out of the bridgehead. The order of march was 1st Platoon in command of Lieutenant Bierman, the tanks, in command of Lieutenant Earl T. Zelle, and the 2d Platoon, led by Lieutenant Glenn R. Murphy. The assault guns and troop headquarters followed. The 3d Platoon, commanded by Lieutenant Charles E. Barrett, acted as rear guard.

Although capturing 25 prisoners en route, the troop encountered no resistance, and took Muhlsdorf without a fight.

Continuing on through heavily wooded terrain to the approaches of Streetz, where a civilian reported that a company of Germans was dug in, the 1st Platoon met small-arms fire from the left flank. It moved on the enemy positions, with tanks deployed in the fields, and the armored cars firing from the road. A dismounted section entered and cleared out the buildings. The 2d Platoon moved up and established road blocks at the road junction northeast of Streetz. At 0830 the town was cleared and 45 prisoners captured. By monitoring the radio, the troop kept posted on Troop A's fire fight in Rosslau.

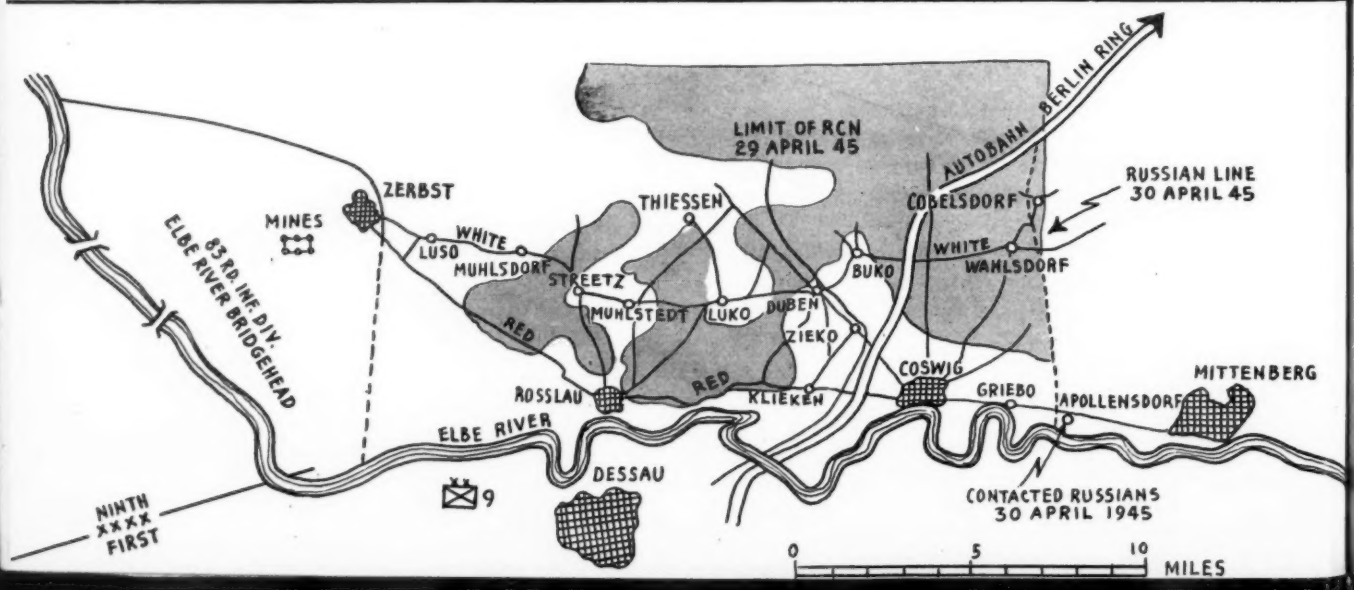
Troop C (less the 2d Platoon, which remained at the road blocks) then moved on Muhlstedt, where the 1st Platoon seized the Rossel River bridge, and captured 25 more prisoners. The 2d Platoon rejoined the troop a short time later and, with prisoners mounted on all available vehicles, moved south to contact Troop A at Rosslau, where a PW cage was being set up by squadron headquarters. It drew small-arms fire at Meinsdorf, so moved cross-country to by-pass the resistance. In crossing through a wooded area 40 more prisoners were captured and left at Rosslau. The platoon then rejoined the troop, moved out again, and crossed the bridge toward Luko along a heavily wooded route.

After clearing the woods, the tanks again deployed and entered Luko from the northwest, as the 1st Platoon, continuing on its axis, entered from the west. Twenty-four prisoners, including an unknown number of enemy wounded, were taken. By 1500 Luko was cleared and the troop continued toward Duben, with tanks deployed on the right flank and the assault guns, with a supported platoon, on the left flank.

As the 1st Platoon reached the high ground west of Duben, it received small-arms fire. It observed several horse-drawn wagons, approximately 30 trucks, and other camouflaged equipment in the woods on the left flank. Armored cars were deployed to fire on targets and also to cover the wooded area. The tanks came forward to fire directly into the town, and the assault guns, on the left flank, moved to high ground north of town to cover the two main roads running east and southeast out of Duben, in order to prevent the enemy from gaining the high ground to the east. After an hour of fighting, enemy white flags went up in Duben, and a German officer came forward to surrender. Troop C immediately moved into the town and took 550 prisoners. The 1st Platoon outposted the two main roads out of Duben, and radioed back that the town was clear of enemy snipers.

The 2d Platoon then came up to relieve the 1st of its outposts, to guard captured prisoners, and to protect the troop's left rear flank. The troop was again reorganized in order to care for enemy casualties, and to replenish ammunition. The discovery of such enemy strength confirmed previously received G-2 information that this was the assembly area for what was believed to be the remnants of the Scharnhorst Division. These enemy units, facing the Russians, were surprised to discover such aggressive action as ours at their rear.

The 1st Platoon continued the march to Zieko to reconnoiter and outpost the autobahn (a German super



highway). Upon arrival at the outskirts of the town small-arms and indirect antitank fire was received from an enemy road block. The column deployed, with a tank platoon on the right flank, and the assault guns in platoon battery on the left. (The assault gun platoon was to cover the advance of the 1st and 3d Platoons by firing on the enemy road block. As soon as the dismounted elements of the 3d Platoon were 100 yards from the road block the fire was to be lifted 500 yards higher into the town.)

The 3d Platoon moved through Zieko dismounted, and the 1st Platoon outposted the town. Approximately 750 prisoners, 15 command vehicles and 14 supply vehicles were captured intact.

At this time a cub plane from the 83d Division Artillery reported that an enemy antitank gun was firing on our troops in Zieko from a position just east of the autobahn. A short time later the Germans started shelling the town and by 1700 the artillery fire was so heavy that Troop C was ordered to fall back and outpost Duben.

As soon as Troop A had been reorganized, a tank platoon from Company F was attached and the troop was ordered to move northeast to Buko, thence east toward the Coswig road. Should the road be clear, the troop was to pick up an engineer platoon in Rosslau and reduce the road block west of Klieken, which had barred its progress earlier. SCR-610 receivers were issued to enable it to hear reports from the cub plane, and the troop left Duben for Buko.

Just east of Buko it captured the wagon trains of Battalion "Oest," composed of SS men. It was believed that they had formed part of the defenses of Berlin, and had been slightly displaced because of the Russian advance.

The troop moved on to the autobahn without encountering resistance, but found that all the overpasses to the south had been blown up and no good by-passes could be located. It therefore continued east on an old logging trail through some dense woods toward Wahlsdorf.

Reports by civilians and PWs indicated that the Russians were near by, so the town was outposted. Small patrols were sent out in an effort to get as close as possible to the Russian lines, send up green flares, the recognition signal previously agreed upon, and await an answering red flare from the Russians.

A patrol led by Lieutenant Solomon reached a point 500 yards west of Cobbelsdorf, but their signals were answered by heavy machine-gun and mortar fire, and Wahlsdorf received 25 rounds of artillery fire, so the troop was ordered to assemble in Coswig.

Troop C moved out of Duben at 0700, in the direction of Coswig on a mission of aggressive reconnaissance to contact the Russians. Rapidly passing through Zieko for the second time, 25 more prisoners were taken. At 0900, the autobahn was crossed, and Lieutenant Murphy reported seeing white flags ahead in Coswig, a city with a population of about 40,000.

The leading platoon drew sniper fire as it neared the city, but went on through and established road blocks on the eastern approaches. The 3d Platoon cleared out the buildings on the axis of march, and by 1130 reported that the axis through Coswig was clear, and that the platoon was moving on Griebo to support the 2d Platoon.

The remainder of Troop C moved in and occupied Coswig, establishing security in all directions.

The 2d Platoon reached Griebo, took it without resistance, and continued toward Apollensdorf. The 3d Platoon came up to outpost the town, using its assault guns to cover the high ground to the northeast.

West of Apollensdorf, a civilian reported that the Russians had been in the town, so a green flare was immediately sent up. Once again the reply was made with small-arms and mortar fire.

The 3d Platoon, under Lieutenant Barrett, was sent around the right flank to attempt contact from that direction. At the same time a light tank with the loudspeaker, which had been used so successfully by the 2d Armored Division, was brought to the point where the small-arms fire had been received. Broadcasts were made in Russian and Polish, saying that we were Amerikanski and wished to contact them. Broadcasts were also made to the Germans in their own tongue, saying that the war was over, and for them to surrender before we really shot them up. This was repeated several times while our tanks fired into the woods. The opposing small-arms fire finally stopped, and soldiers were seen moving on a hill to the left front. Their uniforms were indistinguishable because of the distance. It was necessary to be cautious because the dug-in positions ahead might have booby traps and mines protecting them, and anyone dashing forward to meet the Russians could easily trip one off.

Just then the headquarters of Troop C received the following message: "Contact made. Signed Private Raymond Lombardi, Private Ralph V. Cabana, and Staff Sergeant Raymond T. Gard, 3d Platoon, Troop C, 1330." Everyone cheered and jumped in his peep to go to the point of contact.

The movement was held up while the squadron commander with many other joyous Americans, walked cautiously through the Russian mine field along the Russian line. They assured the Russkis that Amerikanskis were out in front. The Russian mines were then removed from the main road, and that part of Troop C still on the main road was instructed to come on down the road and meet the Russkis. The remainder of Troop C came forward in peeps.

Colonel Biddle, the group commander proceeded immediately to the contact point with Lt. Colonel Kleitz, the squadron commander, and greeted the Russians. It was found that the Russian unit was the 1st Battalion, 320th Infantry Regiment of the 121st Russian "Elite" Infantry Division.

FROM ESCHERHAUS

by Captain Stuart J. Seborer*

ON April 17 we crossed the Weser River, in the sector occupied by the 2d Armored Division. The terrain to the east toward the Leine River was an area of long corridors, lined on either side with rangy ridges, some of which were 200 or more meters high. The corridors provided natural avenues of approach for the attacking forces. All we had to do was follow the east-west grid line straight toward Berlin!

The mission given the 113th Cavalry Reconnaissance Squadron by Lt. Colonel Allen D. Hulse, commander, was to advance rapidly in the assigned zone, engage and destroy all enemy forces of light and moderate strength, and to contain and by-pass all enemy forces that it could not destroy. Any heavy enemy forces met by our containing elements were to be taken over by the 329th Infantry Regiment, 83d Division, which was to follow us in trucks and on tanks.

The platoon leaders and sergeants assembled at the troop command post at Escherhausen at 1600, and marked zone boundaries on acetate mapboards.

Sergeant Fehseke, the 1st Platoon leader, was to lead off to the first fork out of the corridor we were in, which was 4½ kilometers down the road. Lieutenant Fenner would follow with the 3d Platoon and outpost Wickensen, the first town, after Sergeant Fehseke had cleared it. Troop headquarters was to follow, and Lieutenant Ross' 2d Platoon was to bring up the rear.

The 1st Platoon moved out at 1630 and met 20mm fire southeast of Escherhausen. Counterfire was laid down from .50 caliber machine guns, but as the enemy was in a wooded range on a hill it apparently was ineffective. Artillery was called for, and silenced the two or three 20mm enemy guns with 12 rounds.

As we waited on the road, 12 enemy planes flew over the column. The vehicles pulled off the road, and fired several .50 caliber bursts at them. We radioed the information back by SCR-508, and all eyes were sky-happy for the remainder of the afternoon. Two P-51s made a sudden appearance a half hour later, and we quickly displayed our special air panels. For the rest of the afternoon we watched them gracefully swooping down mothering our column.

The 1st Platoon cleared Wickensen, and encountered enemy machine-gun fire just beyond the town. Again there was difficulty in locating the enemy guns. Sergeant Fehseke's and Lieutenant Fenner's platoons were directed to clear out the resistance. The 1st Platoon sprayed fire on both sides of the road and advanced on through, as headquarters and the 2d Platoon moved in to outpost the town and keep close to the leading platoon.

When the 1st Platoon reached a road fork leading into the two corridors comprising the troop's sector, one section went down the left fork and two down the right. The 3d Platoon moved up to the road junction, and was prepared to move in either direction. The first section of the 1st Platoon soon radioed back that one and a half kilometers down the left fork an overhead railroad bridge had been blown, and that it would require our attached engineer platoon about two hours to clear it. A dismounted party of 6 men was sent to investigate the bridge, which was on the outskirts of Lenne, and reported about 75 SS men with machine guns and panzerfausts around it.

After receiving orders from higher headquarters to change plans Colonel Hulse ordered the troop to continue developing the right flank corridor in order to provide security for the engineers who were to clear the north road, which Troop A was then to reconnoiter.

It was now dark, and Lieutenant Kilbane was sent up to expedite the advance from the road junction, and to use the SCR-508 in his armored car as a relay station. Since it was impossible for him to deploy his vehicles in the corridor's narrow defile, Sergeant Fehseke left his ¼-tons behind and moved in with his three armored cars. A squad had been attached from the 330th Infantry Regiment to provide dismounted security, and they moved up along either side of the road.

Machine-gun and rifle fire came from houses on both sides of the road. One of the men threw a hand grenade into what he thought was an open window. But the window was screened, and it bounced back, wounding him in the leg.

Our advance was now completely halted by panzerfaust and small-arms fire, and after a radio conversation regarding the situation, it was decided to bring artillery fire to bear on the Jerries. Lieutenant Kilbane directed the platoon to move back 200 yards and "Cohort" fired a problem. The 105mm's had a pulverizing effect, and after the barrage the 1st Platoon went forward and took Lenne without meeting resistance. When headquarters and the 2d Platoon moved in shortly thereafter, the town was burning from white phosphorus.

As the 1st Platoon moved through town it encountered machine-gun fire which it reduced with 37mm high explosive.

As the 3d Platoon advanced to establish a road block on high ground to the southwest, it ran into about 30

*Commanding Troop B, 113th Cavalry Reconnaissance Squadron (Mecz.).

SEN TO EINBECK - -

Germans with panzerfausts. A ¼-ton was knocked out, but no casualties were suffered. The enemy was dispersed, and the road block set up.

The 1st Platoon rolled into Wangelnstedt without trouble, took 4 prisoners, and outposted the town. The 2d Platoon continued past the town and took Lithorst, where 20 prisoners were captured. Lieutenant Ross quickly began administrating the town by ordering the burgomeister to have all weapons turned in, and calling for any German soldiers still in the town to surrender.

While Lieutenant Ross was in the Mayor's office, the phone rang. The Mayor was directed to answer it, and one of our men who understood German listened in.

"Are there any Americans in your town yet?" the voice on the wire asked. The burgomeister was influenced to answer, "Nein." From the other end came the reply, "Well, they are coming. Be on the lookout for them. Heil Hitler!"

The 3d Platoon moved through the 2d Platoon toward Doitersen in the following order: armored car, machine gun ¼-ton, two armored cars, and mortar peeps. En route, it had just picked up two prisoners when an enemy gasoline truck was seen moving 1,500 yards away along a parallel road. It was set afire and knocked out by several long bursts of .50 caliber incendiary. The gunner had about 25 rounds left in the gun belt, and decided to expend it into a near-by haystack in order to reload with a new belt. The burst set the haystack ablaze. And out from behind it came 9 Jerries, shouting, "Kamerad, Kamerad!"

The 3d Platoon entered Doitersen, captured three Krauts, and outposted the town. Troop SOP was quickly put into effect—wires were cut, arms of all occupants turned in, and pistols equally distributed. It was about 1000 hours, and the men had a late but delicious breakfast of fresh eggs, which were contributed by the German residents.

Headquarters moved into Lithorst. As the first sergeant's ¼-ton turned a corner in the center of town it was confronted by 5 German "diehards" armed with at least two panzerfausts. One fired a rifle and another a panzerfaust at a range no greater than 20 yards. Both occupants piled out of the ¼-ton, which was hit and immediately began to burn. An SS captain 5 yards away suddenly rose and aimed his Luger at the sergeant's back. The troop commander's driver, who was racing around the corner, came to a sliding halt and fired a full clip from a .45 caliber Thompson submachine gun at the SS captain, who ran about 50 yards with at least five bullets in his chest before he fell dead. The others escaped. An armored car then sprayed near-by doorways with .50 caliber machine-gun fire, and moved to the east edge of town to maintain guard.

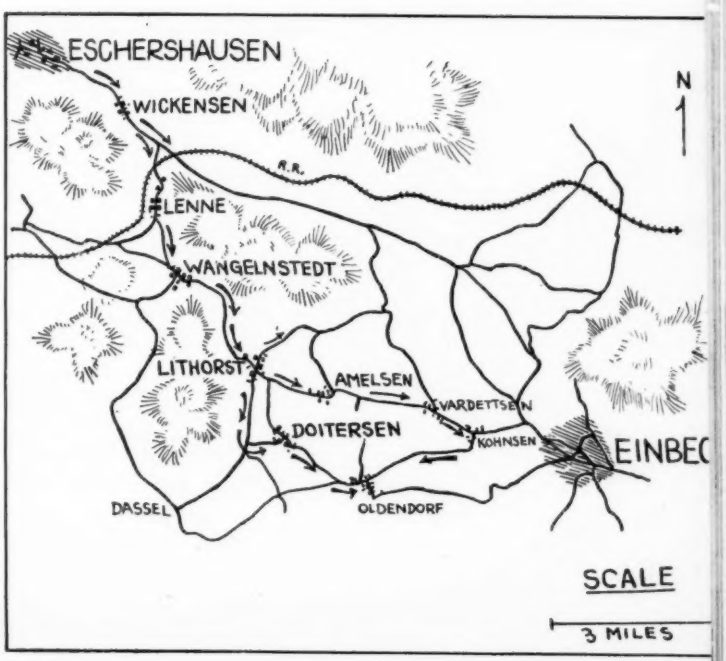
The 1st Platoon moved east into Amelsen, the next town, in the following order: two armored cars, two machine-gun peeps, one armored car, and three mortar peeps. Upon arrival it collected from residents several dozen rifles, pistols, shotguns, and various other weapons, all of which were found to be loaded.

The 2d Platoon moved in to occupy Vardettsen without meeting resistance. Several prisoners on the road stared at our armored cars, muttering that the Americans were not supposed to be within 40 kilometers.

A short time later, the 2d Platoon continued to Kohnsen, which it occupied and outposted without difficulty, and headquarters moved into Vardettsen so that it was more centrally located.

The 3d Platoon followed the 2d, taking the southwest bend in the road at Kohnsen. It was to provide south flank security by observation of activity at Oldendort, where a battalion of enemy were reported bivouacked. En route, it overtook a horse-drawn five-wagon ammunition and supply train, took 27 prisoners off and blew up the train, which carried small-arms ammunition, panzerfausts and mines.

Our mission was completed. We maintained our security, and relaxed a bit after a continuous reconnaissance that in 36 hours had carried us from the Weser to the Leine. We slept well that night, and the next day we took Einbeck.



Comments

Help Wanted:
A Cavalry Rifle Troop

by
Captain Don W. Voorhies
3rd Cavalry Group

MORE MEN! How often that plea has been made. And with considerable justification, I think, when it has been voiced by cavalry commanders. Certainly, a cavalry reconnaissance squadron needs them badly for a number of reasons.

Combat employment in the European theater has not by any means been limited to reconnaissance. Cavalry has been used in offensive actions, pursuit, and delaying actions. It has been used to exploit breakthroughs; to seize and hold important terrain features; to defend river lines; to protect exposed flanks of divisions and corps, and to maintain contact between those organizations. And it has been this multiplicity of rôles that has pointed up the shortage of personnel.

This shortage has been most acute when attacking strong points, clearing towns or woods, organizing defensive positions, and employing tanks in the attack.

In actual practice, cavalry commanders frequently have found it necessary to operate with a sparsity of troops who are spread dangerously thin, and to send out tanks which have no protecting riflemen. Most emphatically, yes, more personnel was needed! It was needed as an organic part of a cavalry reconnaissance squadron because the temporary attachment of infantrymen on a short-time basis were unsatisfactory. Such troops were too often grudgingly assigned, and too often were unschooled in the tactics and technique of cavalry. Moreover, they were sometimes suspicious, distrusted their mission, and wondered if they were going to be put out in front to do all of the fighting for the unit to which they were attached. This precluded the well-coördinated teamwork that is desired. No, the much needed riflemen must be an *organic* part of the squadron.

The squadron should be given another troop—a Troop "D" of ever-ready, trained cavalrymen who would be completely loyal riflemen. They would be used to good advantage. In making such an addition, it is suggested that the troop could well be set up along the lines of existing armored infantry companies (less the antitank platoon), thereby taking full advantage of present, well thought-out, battle-tested tables of organization and equipment, much as was done when cavalry added the tank company organization from the armored force.

Some of the advantages from having such a troop of riflemen would be that, with these additional men, strong and effective task forces could be formed around Troop E and Company F. Or, if the situation indicated, the riflemen could be apportioned to each troop, thereby making possible three powerful forces composed of one reconnaissance troop, one assault gun platoon, one tank platoon, and one rifle platoon. Such a force would be well-balanced, self-sufficient, and would possess tremendous striking and holding power. The rifle company at times could be used in entirety to hold ground, and to clear towns or woods. The ancient bugaboo of the river crossing would be capable of solution with an organic company of riflemen. The tank troop could, for a change, assault a town with riflemen on the deck, and thus keep off the panzerfaust fanatics.

Cavalry employment should be viewed in its *broadest* concept, and the squadron should be given the necessary additional personnel. Cavalry would then be *completely* ready to perform the wide variety of missions which are expected of it. It would perform them with the usual high degree of skill and thoroughness, but without the "calculated risk" that existed on ETO combat missions.

The 3d Cavalry, with its motto of "Brave Rifles," has again proved its bravery—but found that it lacked the rifles.

* * *

Light Tanks in Pursuit*

by Major James W. Cocke, Cavalry

A typical action, which confronted many tank troop commanders in cavalry squadrons during the closing stages of the war in Germany, shows the utilization of speed, and shock action by light tanks against a disorganized enemy.

Situation

THE action began between Hagenbach and Huttenbach, Germany, when the 191st Tank Battalion, commanded by Lt. Colonel W. G. Dolvin, moved out in an advance that called for destruction of the enemy, retreating toward Huttenbach.

As the Germans withdrew they left a small covering force which offered small-arms fire as token resistance.

*(From the Battle Experience Report to Armored Section, Seventh Army, by Lt. Colonel W. G. Dolvin, Commanding Officer, 191st Tank Battalion.)

...ts from Combat

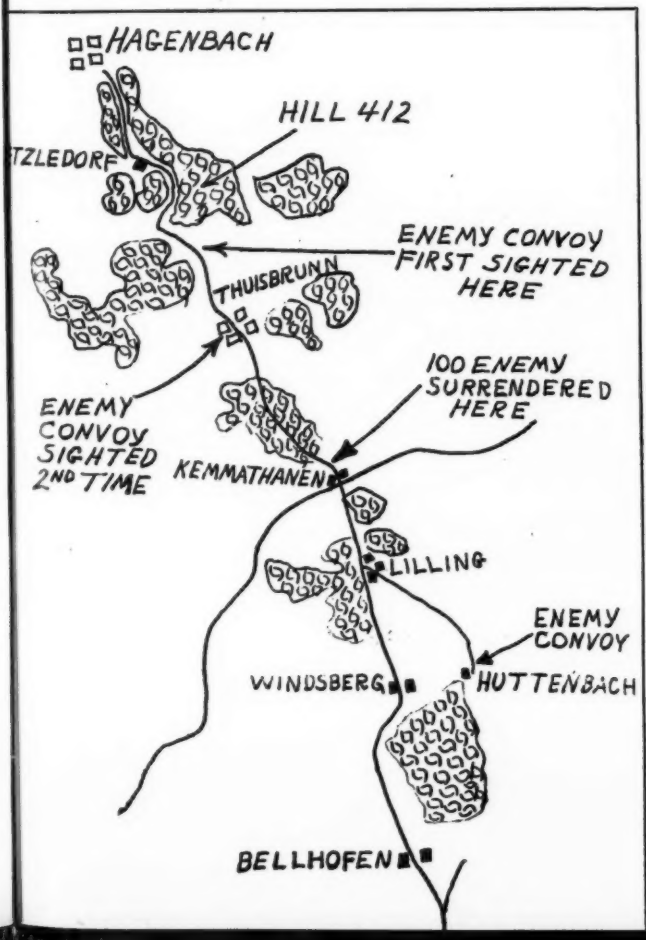
Company D, comprised of light tanks, was ordered to send out a platoon as an advance guard, which was reinforced by a platoon from the 157th Infantry, of the 45th Division. The tank battalion was ordered to move in two columns.

The Attack

To make possible the additional speed needed in such an operation, the 4th Platoon of Company D moved out with the infantry platoon mounted on the tanks. The infantry platoon commander was the only man mounted on the lead tank, because, as the first tank to encounter the enemy, it would have to bring its fire power to bear quickly.

The column advanced for some distance without meeting resistance, for the enemy was retreating in mass under pressure. As the tanks cautiously approached the first point where stiff resistance was expected, the infantry dismounted and proceeded along the flanks of the tank column. This precaution was unnecessary, however, for the enemy already had evacuated the town.

The infantry remounted the tanks, and the advance was resumed to Hetzledorf at a rapid pace against only light scattered small-arms fire.



Enemy Column Sighted

As the unit rolled forward, the platoon leader made every effort to stay on high ground for better observation. Arriving on Hill 412, the commander of the lead tank observed an enemy convoy of motor and horse-drawn vehicles moving southward from Egoloffsteinenhull. The infantry dismounted and the light tank platoon immediately moved into line to fire at the convoy, only to find that it was out of range. Leaving the infantry in position, the tank platoon commander moved closer, and from line formation destroyed enemy vehicles and captured some prisoners. The infantry then came up to rejoin the tanks, and the attack was resumed without delay.

The column continued to the outskirts of Thuisbrunn where it met small-arms fire from an enemy delaying force. The infantry dismounted again and moved on either side of the column as it entered the town, routing the enemy from the cellars and houses from which they had been firing.

The pursuit continued, and the convoy was again caught north of Hohenschwarz. Here the same routine was followed: infantry dismounted while the tanks moved into line to bring the column under fire, and enemy vehicles were destroyed or set on fire. The main enemy column, however, continued moving south.

The infantry reorganized, mounted the tanks, and the advance continued to the high ground in the vicinity of Lilling, where the enemy convoy was again sighted. The platoon leader picked up speed, and maneuvered to flank Huttenbach from the west. At the same time the medium tank column, followed by the light tanks, moved through Windsburg in order to fire on the southern part of Huttenbach (see sketch).

The enemy convoy was taken under fire by both columns and almost completely destroyed. After the prisoners were rounded up, the tank columns reorganized and continued the attack to the south.

Comments

In commenting on the action, Colonel Dolvin said: "When a column is making an attack on a fleeing enemy, a smaller force must precede the main body as

a covering force to protect the column from a surprise attack. Because of their mobility, light tanks are especially suited for this type work. Their mission is to contact the enemy and, destroy him if possible. The light tanks should precede the main force by from 300 to 500 yards, so that the latter can deploy whenever the covering force of tanks contact an enemy that they cannot handle.

"The light tank platoon leader must possess initiative and be tactically inclined. In this action, the platoon leader possessed the necessary qualifications; he selected a route along the high ground, to give him better observation of the enemy, and maintained contact with the retreating convoy at every opportunity.

* * *

Zone Reconnaissance for the 30th Division

*by Captain Samuel M. Lindsay**

THE 125th Cavalry Reconnaissance Squadron (Mecz), which had previously provided flank security, on April 12, 1945, was given the new mission of furnishing aggressive reconnaissance for the 30th Infantry Division as it advanced toward the Elbe River. Its mission was to destroy all enemy units of its own strength, to report and by-pass stronger enemy resistance, and upon reaching the Elbe River line to report all bridges and possible ferrying sites.

*Commanding Troop A, 125th Cavalry Reconnaissance Squadron (Mecz).

Enemy Situation

Little was known of how much resistance the enemy could offer, but reports indicated that they were trying to get back across the Elbe regardless of formation or orders. It was therefore believed that the mission could be accomplished faster and with less chance of casualties if the troop moved out fast with three platoons on line, instead of moving two platoons on line and holding one platoon in reserve. A point in favor of this was that the existing road net would enable one platoon to come to the aid of another without delay.

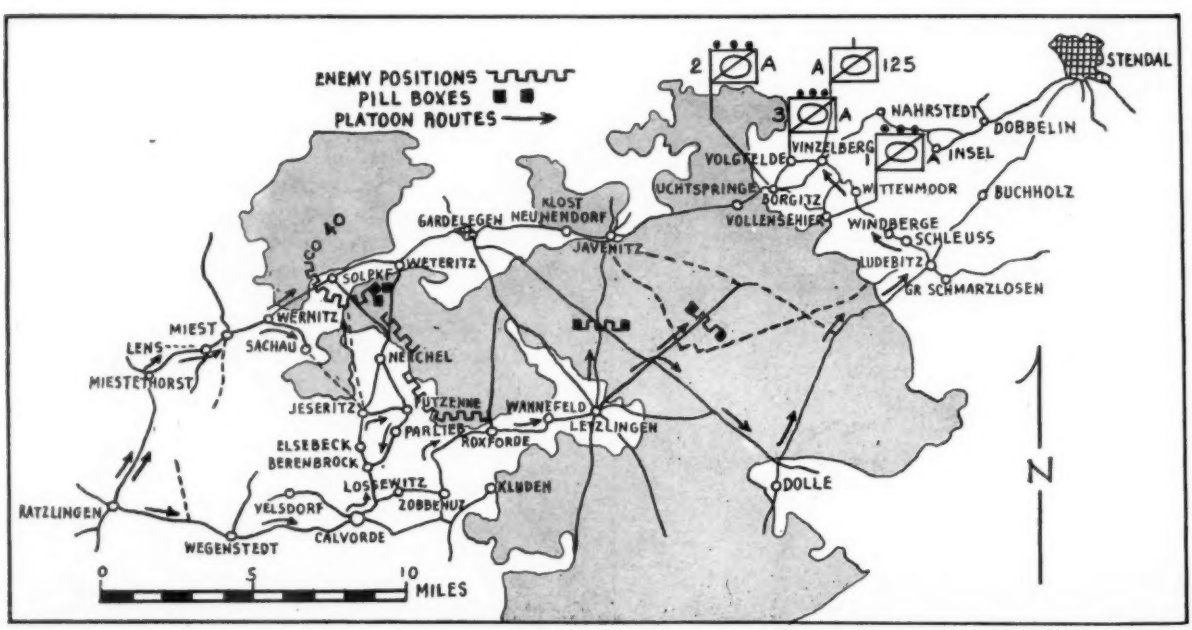
Order of Movement

Troop A took the north sector and Troop C the south sector of the squadron zone. Troop A moved out with the 1st Platoon on the north, and the 2d Platoon and Troop Headquarters in the center route, which was to form the axis of communication and the evacuation route for all wounded and PWs. The 3d Platoon was on the south. Contact between A and C Troops was maintained by radio.

Attached to the troop was one platoon of light tanks from Company F and one platoon of assault guns from Troop E. The 1st and 2d Platoons had attached a section of tanks, and the 3d had a platoon of assault guns. The tank sections and assault guns were placed immediately behind the first armored car in each platoon so that they could rapidly act as a base of fire should heavy resistance be met.

Execution of the Mission

After leaving the assembly area, the three platoons met feeble resistance along their respective routes, but were moving so fast that the enemy was unable to set up a defense strong enough to stop them. At Ratzlingen



the enemy was setting up a rear guard to protect the withdrawal of approximately 1,000 troops. Our tanks and lead armored cars fanned out immediately, and dismounted personnel went forward quickly to disperse the enemy troops. In the pursuit that followed we captured nearly 1,000 PWs.

As darkness was near, and our PWs had become quite a problem, the troop was ordered to assemble in and outpost Ratzlingen for the night, and to continue the mission the next morning.

The next day the 1st Platoon ran into stubborn resistance near Solpke. The surrender of the enemy force was sought with the aid of a German civilian; however, even under the threat of an air strike, the enemy was determined to fight. The 2d Platoon then moved from its position at Sachau to help the 1st Platoon by bringing fire on the enemy's flank. Both platoons were stopped before they could reach Solpke. The 3d Platoon, meanwhile, had continued east, but hit an enemy strong point 1,000 yards northeast of Potzehne. These contacts made it evident that the enemy held a strong defensive line running southeast from Solpke and blocking all routes into Gardelegen. The troop maintained contact long enough to determine that the enemy strength amounted to a battalion. This was accomplished by dismounted patrols, captured PWs and our own recaptured PWs' statements.

Permission was obtained to use Troop C's route in order to by-pass this resistance, and on reaching Letzlingen, the platoons went back to their original routes. The 1st and 3d Platoons were halted once again by excellent enemy defensive positions, which included several pillboxes. The area proved to be an ordnance proving ground whose troops were well equipped, knew the terrain perfectly, and were ready to meet our advance.

The troop's mission was altered, and instead of continuing on to the Elbe River it moved around the heavily wooded area and set up a series of road blocks on its northeastern edge. This cut the enemy's route of withdrawal and enabled other friendly troops to engage him on his front and close the trap. Three blocks were set up facing west to cut the enemy off completely. During the day two strong patrols from each platoon were sent into the woods where enemy contact was gained and maintained. In the following three days, 700 PWs were captured as they tried to get back across the Elbe. On the third day a patrol from the 3d Platoon, taking 85 PWs en route, contacted a unit from the 102d Infantry at Gardelegan which had been cleaning up pockets left behind by the 5th Armored Division on our north.

Conclusion

It is believed that the successful completion of the mission without loss of personnel or matériel was due to the following reasons:

1. Tanks and assault guns were kept well forward so that they could be brought into action as quickly as possible.

2. A prearranged plan on dismounted work eliminated confusion and delay.

3. A constant checking on platoon positions allowed help to be given to any position that was in trouble, with a minimum lapse of time.

COMBAT EXPERIENCES

Now is the time to write us a story of your experiences in combat.

The lessons you learned are valuable for future study.

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Write it your own way. Include photos if possible.

Anything from 100 to 2,000 words.

Send it through your Public Relations Officer for "field clearance." Address it to: The Cavalry Journal, 1719 K St., N.W., Washington 6, D. C.

What have you learned in combat that should go into the record?

From the Roe

This story was written by a member of the Md Dep and sent to The Cavalry Journal by his brot James later killed during fighting before Hannover e batt

THE military strategists said it could not be done. The experts claimed the tactics were wrong. But, notwithstanding, the march of the 84th Infantry Division from the Roer to the Rhine, in the closing days of February, 1945, will always rank as a brilliant achievement, rivalling Patton's dash across France last summer.

This is not a story of tactics, it is the tale of a typical rifle company that walked some 45 miles in 11 days, through hell and high water. It is the account of the doughboys of Company I, 335th Infantry Regiment, and begins late on the afternoon of February 23, in the battle-pocked town of Svgvath, Germany, a few miles west of the Roer.

The boys knew that the big drive of the Ninth Army to the Rhine was on. They had rehearsed it and lived it for days before. Already the 102d Division was pouring across the Roer up ahead. The 84th's mission was to follow up, then make an end run and drive on through.

The full impact of what might happen did not dawn on the men of Company I until a few hours before they jumped off, when a chaplain from the 2d Battalion came down to where the 4th Platoon was sitting around a blazing fire.

"I'd like to say a few words of prayer with you men," he said quietly, and the men got up and followed him into the room of a wrecked German home. There among the debris, the chaplain prayed for the men, and they prayed with him.

A few minutes past 1600 Company I moved out, down the road to the Roer, with the slender figure of Captain Charles E. Phillips in the lead. The road was clogged with traffic—most of it moving toward the river. Spread out in single file on both sides of the road, the doughboys marched into the dusk, through Lindun, Germany, where only a few months before they had stormed the town and taken it. Passing familiar ground they moved to within sight of the Roer. Suddenly the horrible nightmarish scream of enemy rockets cut the air. Instinctively the men threw themselves into the ditches along the roadside.

The artillery threw up geysers of dirt about 100 yards away, cutting a checkerboard pattern across the field. Then it stopped, and the company moved ahead. On the outskirts of Linioch, where they made the crossing, the men dropped into foxholes and ate a cold K ration supper.

Company I crossed the Roer shortly after 1900 that night. There was nothing noteworthy about the crossing. They had to go by the bodies of fallen Americans to get there, and the dead still clutching their rifles pointed toward the opposite end of the river bank, lay peacefully along the footpath, where they had died that morning.

A sergeant stood at the end of the narrow footbridge and counted the men off as they sloshed across the bridge. Only two on the bridge at a time. It was dark, and one could hear the roar of the river below as he double timed it along the slippery planks to the other side, where a main road ran sharply by the river bank.

It was nearly midnight when Company I dug its foxholes on the edge of Konnigsrit. To the left was K Company and Company L was to the right. They strung out over about 400 yards of front—and M, the Heavy Weapons company, supported them from the rear. Lt. William Elinburg, 4th Platoon leader, took over a partially bombed-out chateau for his CP. The other platoons were located farther down the narrow road that paralleled the front. It was 2:00 a.m. and raining—8 miles that day, and across the Roer.

As they entered Houverath, Company I underwent the worst artillery bombardment the outfit had ever known—air bursts, railway guns, light and heavy artillery and mortars blanketed the line of march. A later report informed them that the entire divisional artillery for the 183d Volksgrevadier Division had been zeroed in on them. This same artillery was captured intact when its positions were overrun by the 2d Battalion.

Casualties mounted, and aid men organized stations in shattered buildings. Houverath was too hot to handle.

The major Company I milestone came on February 25th between the towns of Houverath and Golkrath, a distance of about 1,500 yards. Golkrath was a communications center for the Jerries. Companies I, K and L had to knock it out. Company I spearheaded through the center; K went to the right and L to the left.

Company I jumped off from Houverath at 10:15—right on schedule—into the worst hell that they had known. They did it without artillery or tank support. Lieutenant George A. McIntyre and his 2d Platoon spearheaded from the left. Lieutenant Harry Wilson led his 1st Platoon on the right. The Weapons Platoon was in the center, the 3d Platoon in reserve. They had to cover 1,500 yards over open, rolling terrain, perfect targets for Jerry.

German artillery poured down, but the doughboys were too fast. All but the 3d and 4th Platoons moved in under the artillery and ahead of it. Those men clawed holes and cursed, ran again, dropped, ran again and kept on. Nine minutes after they started, Lieutenant McIntyre's first elements, the 2d and 3d Squads, were inside Golkrath and Lieutenant Wilson's moved in a few minutes later. The field behind was littered with dead and wounded and a haze of artillery shell smoke covered the route, but the objective was taken.

All that day and night the Germans poured artillery into the town. Then, the next morning it was quiet, except for the rumble of our own heavy equipment as it

...e to the Rhine

...e M... Department, Sergeant Chase Donaldson,
...rot...ames Donaldson. Sergeant Donaldson was
...ver...e battle of the Weser River, on April 8, 1945.

massed inside the town. The siege was over, the back of the German defenses was broken in that sector, and from there to the Rhine it was a mad dash to chase the Germans.

Footsore, bedraggled, sloppy and unshaven, Captain Phillips' men plugged on, day after day. They fought at night and slept in captured houses till noon, then got out and walked 8 more miles. They walked from noon until dawn the next day, across and down the proud Hitler concrete highways.

They lived like kings one minute and shivered in foxholes the next. They yelled at German soldiers as they marched by, hands over their heads. Laggards were sped up by well-placed boots on their Teutonic tails. For a few glorious days they had all the captured bikes that they could use, then Division cracked down, and Company I went back to hoofing it.

Sometimes electric lights and telephones were still connected and working. One doughboy tried to put through a call to Brooklyn, another ate 14 eggs. Some carried their eggs with them. Others lugged sausages and onions, potatoes and hamburger sauce.

The night I Company stopped on the edge of the big German industrial city of Krefeld, the troops slept in houses. In one of them a dead American soldier lay at the entrance to the basement. A flashlight picked him out there on the floor. Kindly hands carried him away.

Six men piled into one room where there was a big double bed. There was not space for all of them on the bed, so some slept on the floor on the *hausfrau's* finest linens. At midnight German artillery struck the house and the boys in the bed scampered for the basement. Those on the floor scooped up their bedding and climbed on the bed, pulled the covers over their heads and went back to sleep. To hell with the artillery.

The company spent 6 hours in Krefeld next morning and the time passed without excitement. From Krefeld the company had to go north 10 miles and then east through Moers to the Rhine. In the farmhouses along the way the doughboys met Russian slave laborers, who ran out and kissed them.

But about those last miles to the Rhine. The company was gathered at Hell's corner in Moers. Two German self-propelled 88's, safe and well protected under a viaduct, blasted away at anything that moved on the corner. Tanks were knocked out and men killed. Company I went into the basements, waited, and cooked eggs in the cellars.

Shortly after dark the company got its orders to take the town of Boul. That meant a move of 5,000 yards. To get there Captain Phillips took his men 2,000 yards to the flank and behind the German lines. Ahead was L Company, to the left K Company. The whole 3d Battalion staged a combat patrol that night.

They moved out in the moonlight, down a road to a viaduct where two American tanks had been hit and were burning, creating an eerie half light. The men moved right past the burning vehicles, along a railroad embankment to the edge of a small lake. After the manner of commandos, the company crawled and scaled the sides of the lake ledge, within 20 yards of a German command post where 6 German officers were playing cards, and past German dugouts that still smoked. Once a German machine gunner who was nervous from the silence of the night and probably heard a twig snap, opened vicious fire. The tracers sped across the lake. Two men were wounded. It looked as if the company were surrounded. For an hour the men lay there, until their feet became numb from cold. Some were dead tired and fell asleep, the silence was punctuated now and then by a snore. Far across the Rhine they could hear the air raid sirens going in Duesberg and Dusseldorf, where the RAF was at work.

The doughboys finally moved along the lake shore and, taking care not to show themselves against the skyline, felt their way around the cliffs. An hour later the whole company had skirted the lake and reached the edge of Boul. Past Boul they marched, then stopped. Some of the men were scared. Their situation was precarious. The company was in a fair way to be cut off. Captain Phillips waited for new orders. Meanwhile the exhausted men lay down along the railroad embankment and, for the first time in 35 hours, slept.

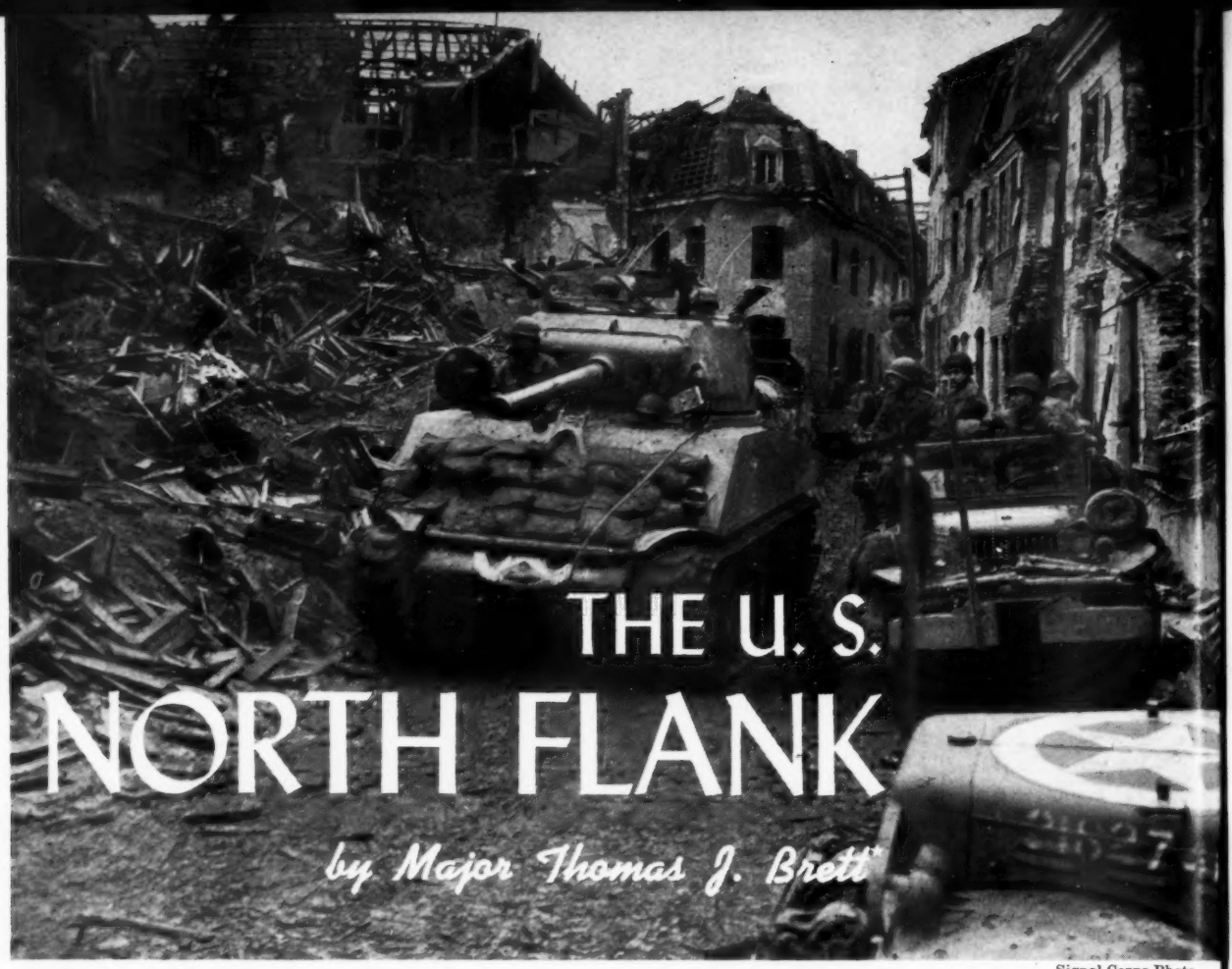
Then the orders came through and the company moved again, this time back to Boul. Captain Phillips set up his CP in a house near the railroad.

Here the last tragic action of the drive took place. The men were grouped around the CP, half awake, or sleeping in the gutter and on the sidewalk. In the early dawn somebody lit a cigarette. An instant later the whip and crash of 88 shells split the air. A self-propelled gun hidden down the very tracks along which they had just marched had spotted them. One man was killed.

By 6:00 a.m. the platoons had dug in, establishing a perimeter defense. Here they waited for a counter-attack which never came. Just before dawn they heard an explosion; the Germans had blown the Rhine bridge.

The morning light broke on a clear sky as the sun came up. The weary men looked from their holes with bloodshot eyes and nudged their sleeping companions. There it was, below and ahead about 400 yards, rippling away, clear as the Mississippi at St. Paul. There was the Rhine.

"Objective reached," Captain Phillips radioed back. As he did so the sound of American tanks and big guns came up the road. I Company was no longer behind the German lines.



THE U. S. NORTH FLANK

by Major Thomas J. Brett*

Signal Corps Photo

American armor moves to a Roer River crossing at Linnich, Germany, as entrucked infantry await their turn.

THE open and vulnerable northern flank of the 9th Army was safeguarded by the 11th Cavalry Group from the Roer to the Rhine, then to the Weser, the Leine, and on to the Elbe.

Little was heard of this mission of the 11th Cavalry in the bigger picture comprising the "Battle of the Bulge," and in other actions which had their "mechanized heroes"; but the mission was accomplished with such success that a statement frequently made at XIII Corps Headquarters was: "We have the 1st Army on our right—and the 11th Cavalry Group on our left!"

The fulfillment of the mission occurred along the most northern flank of the U. S. forces, where a most critical open spot existed. The strategic plans of the British Army left our north flank under enemy control most of the time. From the Roer to the Rhine, the British were preoccupied with an attack far to the north, which later resulted in their joining us at the Rhine. But from the Rhine, the British drove northeast to Osnarbruck, Celle, Uelzen, and then to the north. This left large gaps of enemy-held territory between the two Allied forces.

The Group, therefore, had more than a single mission. It had to protect the north flank, and keep in physical contact with the British on the left, and the infantry division on the right flank. It also became a separate spearhead that captured towns, cleared woods, and seized bridges across important canals and rivers.

The success of this campaign can be attributed to one principle: *Follow the book!* The Group was not supported, as were other units on similar missions, by a large task force of infantry, engineers, TDs, and armored field artillery. One company of SP TDs was attached at one time and one battalion of TDs at another. Neither did the Group use some unusual formation or idea to accomplish the mission. It employed a balanced combination of reconnaissance elements, assault guns and light tanks, deployed them according to their capabilities, and drove forward to its objective.

The 44th Cavalry Reconnaissance Squadron had seized the only bridge over the Leine River in the XIII Corps' sector. The enemy held near-by positions in strength. But instead of clamoring for field artillery, infantry and tanks to secure the bridgehead, the 36th Squadron was diverted from a march to the north. It advanced dismounted at night directly underneath the enemy guns and by daylight had neutralized all resistance, thus opening the way for the 84th Infantry Division's assault on Hannover from the flank and rear.

*S-3, 11th Cavalry Group (Mecz.).

During our advance from the Rhine to the Elbe, the group executive officer had been captured. The search was taken up by the 36th Squadron, which was preparing to halt for much-needed maintenance. The following account of an engagement during the search was made by one of the platoon leaders. It emphasized the value of sound instruction which leads, even under the heat of battle, to the quick employment of accepted tactical principles for overcoming enemy obstacles:

"Shells were observed falling in Langenhagen, north of Hannover, as we prepared to enter it. Troop C's 2d and 3d Platoons, led by dismounted parties, were sent forward and entered the town on roads from the south and west. Each platoon had two light M24 tanks attached. The 1st Platoon, and headquarters, which was supported by an assault gun platoon, were held in reserve on the outskirts of town.

"In the town, we found signs of an earlier fight. The Germans, however, had withdrawn to the east, leaving two 88's covering the route of our advance. As two assault guns of Troop A fired in an attempt to reduce them, Troop C sent a dismounted patrol north along the railroad to look for a by-pass around the 88's. The patrol, after following an unimproved road parallel to the proposed route for a mile, found it impassable, and returned.

"The two 88's had been knocked out in the meantime by 37mm fire from Troop A's armored cars, which killed two Germans and wounded others; the remainder were dispersed by fire from Troop E's assault guns.

"Our 3d Platoon moved past the wrecked 88's, and ran into a few dismounted Germans. Several were killed, and three were captured. The prisoners said that they were from a flak outfit 600 yards from the main road. The platoon leader after reconnoitering led a dismounted party to a large building overlooking the flak emplacement. He then brought armored cars and tanks into position behind stone buildings, and opened fire on the installations with .50 caliber machine guns, 37's and 75's. Several buildings were set on fire by tracers. Since the only fire that was returned for several minutes was from weapons no heavier than 20mm AA guns, the platoon leader brought up a tank and his armored car, and started moving in on the position. When the tank was about 200 yards from the road, however, and the M8 armored car had just started to move out from behind the building, an 88 fired a round which passed about 10 yards in front of the M8. The car immediately moved back behind the building, and signalled the tank to return. But the tank had found cover behind another building, and returned the fire, destroying a 20mm position.

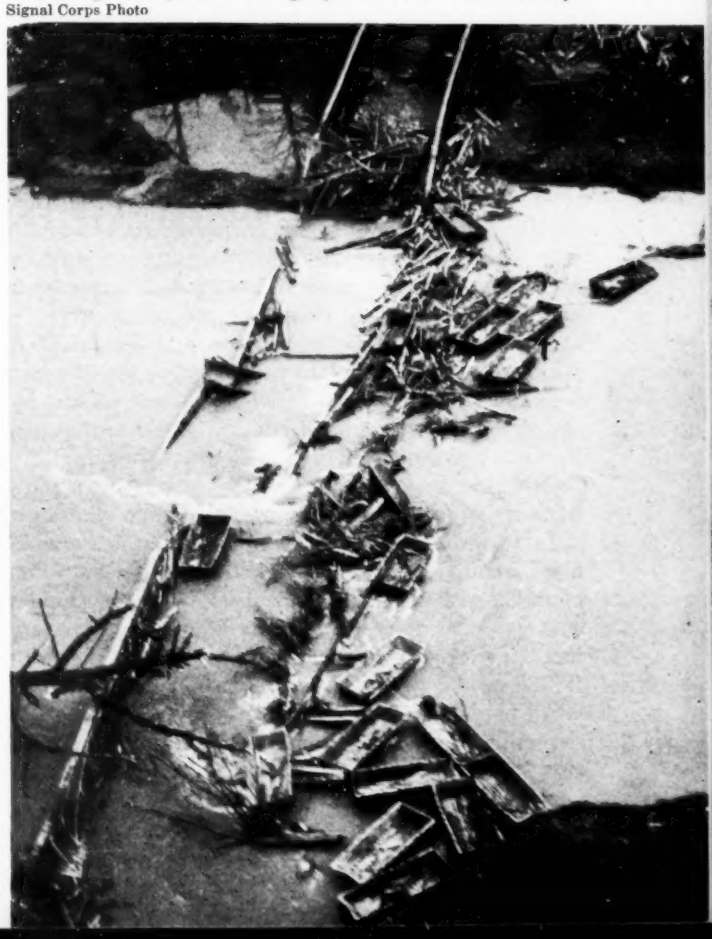
"The platoon leader then radioed the tank to withdraw. This was successfully accomplished under a concentrated covering fire from all available weapons, including mortars. By this time, several 88's had been located by their flashes, and an effective fire was laid on them by two assault guns of Troop E, and our three 60mm mortars, which had been set up in battery. The firing was stopped at dark, and a dismounted platoon went forward and found the position abandoned. The toll from the mortars and howitzers was: four 88mm guns destroyed, four 88's abandoned in good condition; several 20mm guns destroyed, and five light machine guns abandoned.

"Our experience with the 88's has shown that they are a weapon to respect, but not to fear. We feel that we can beat them every time with indirect fire which is used in conjunction with direct fire, and by sending out a dismounted enveloping party."

Battle experiences reaffirm the essential soundness of the old principles found in the FM—hit hard, use the base of fire and enveloping force, move fast, and use expedients. (Our speed during the mission, for instance, was 23 miles per day.)

An illustration of one expedient was the method by which the 36th Squadron crossed the Niers Canal during the drive from the Roer to the Rhine. In this instance, the 84th and 102d Infantry Divisions of the Corps were piling into Suchteln and Viersen, and up against the Niers, over which all bridges had been blown. The 36th Squadron was ordered to extend its north screen from the canal to, and including, Kempen, which was to the east. Upon its arrival it made a reconnaissance for fords, but found none. The usual pro-

Abandoned bridge and assault boats on the Roer River following a surprise crossing by the U. S. Ninth Army.
Signal Corps Photo



cedure would have been to sit tight and wait for the engineers.

Instead, the squadron CO assembled more than 200 German civilians with wheelbarrows and shovels who filled in the gap in the bridge overnight. It wasn't a good bridge, but the Group crossed it the next morning and continued on its mission. The bridge later became one of the crossing sites for the Corps.

Because of our rapid advance and increasing distances, radio communication became correspondingly difficult, and radio contact with the Corps CP was interrupted at times. Contact was never completely lost, however, because Group headquarters did not rely solely on radio communication. In order to insure information getting through, it assembled a pool of liaison officers, and instructed them to keep moving, keep their eyes open, and to continuously exchange situations with the assigned headquarters. This made possible the preparation of a situation map at Group headquarters that was more up to date than any in the sector, and permitted information on both enemy and friendly troops to be furnished adjacent and higher commanders. The liaison officer carried an overlay of this amassed data on each trip he made to a headquarters.

An operation cannot be planned successfully unless all means are used to keep the commander and the troops posted on enemy information. Prompt but careful PW interrogation by experts under the supervision of the Group S-2 supplied us with much valuable information. We learned that the interrogator first should be briefed on the information that is desired, furnished with maps, and then left to his own method to secure the information. When a large number of prisoners were taken, a hasty "screening" revealed those most likely to give the information needed. They were segregated for a more careful interrogation.

Other intelligence sources were aerial photographs, and large scale maps on which enemy defenses had been over-printed or plotted. These were supplemented by information secured from scouts, and reconnaissance and combat patrols. Another vast amount of information came from exchanging periodic and patrol reports with units on each flank, to and including the battalion level. Harmful delay can be avoided by not waiting for the patrol reports of adjacent units to be processed through regimental, division and corps echelons. This information was exchanged while it still was useful by using messengers, or wire if the situation was static.

In furnishing subordinate units with the required maps, charts, overlays and aerial photos, the principle of anticipating their requirements and drawing supplies at every opportunity, prevents running out of necessary items at critical times. Constant contact with squadron S-2's keep them eager to secure and relay information.

All of the "know-how" for securing, evaluating, interpreting and disseminating information on the enemy also is in the book; and a situation where the book method, plus adaptability and common sense won't work, is usually a situation where nothing will work.

A tremendous supply problem confronted us after we crossed the Roer River. The principles of supply as given in FM 100-10 were followed closely, and proved adequate for every normal situation. The advance of mechanized units, however, out-paced the reasonable range of supply sources. Therefore, the tactical mission dictated supply policy, and expedients again saved the day. Squadron truck companies, composed of organic transportation, captured and "requisitioned" trucks, drove hundreds of miles over congested roads to bring gas to our advancing troops. When supply points were 200 miles to the rear, only by a "liberal interpretation" of gas and ration allowances could we assure the necessary supplies. Instead of carrying two days' rations, the squadrons carried five; instead of 700 gas cans, one unit had 1,800.

Conclusions from the experiences of the mission are as follows:

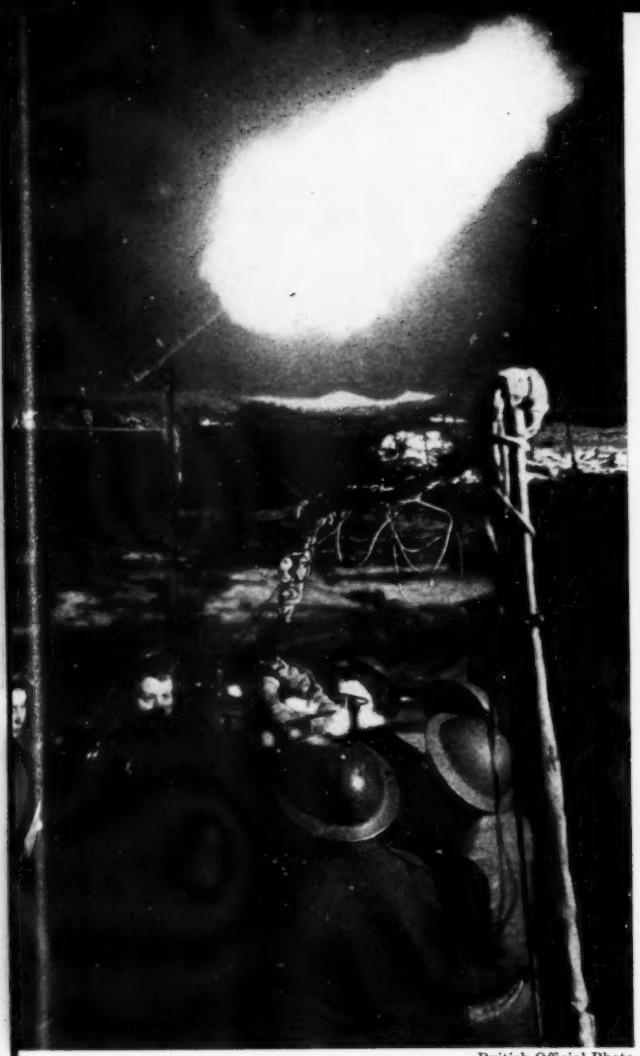
(1) Cavalry squadrons can accomplish any cavalry mission, provided they employ the fundamental cavalry principles of speed and shock, and use properly the combinations of forces that are available within the squadron.

(2) The Group staff must set the pace for the Squadron staff; and likewise, the Squadron staff must be with the troops, leading them. General Patton's phrase "You can't get behind spaghetti and push it; you have to be out in front and pull it" is especially true in cavalry action.

(3) Staff work must be correlated. Effort must be made to keep *all* key staff members informed of all plans, operations, methods and expedients, so that the staff will function as a team but at the same time will discharge individual responsibility to the commander.

An improvised road block of an armored car and a jeep was established by the 36th Cavalry Squadron in the vicinity of Bromenzein, Germany.

Signal Corps Photo



British Official Photo

A predictor detachment of British servicewomen assigned to a battery of antiaircraft guns passes the order to the guns' crew to fire. Radar provided the data which enabled the predictor to guide the guns onto invisible enemy planes over Britain during a night raid—one of many uses.

RADAR*

PARTIAL lifting of the radar censorship ban makes it possible to reveal the importance of radar's part in the defeat of Germany.

Radar's first triumph was in the Battle of Britain. Without Britain's extensive operational radar system, the "Few" of Mr. Churchill's immortal tribute would have been too few to stem the massed attacks of the Luftwaffe. Radar alone made it possible for them to dispense with wasteful standing patrols and to intercept the enemy at the right time and place.

Two years before that, when Mr. Chamberlain flew to Munich, the British radar chain was already in operation. So, while the whole civilized world held its breath in the darkest days of 1940, Britain was secretly protected by a curtain of radar waves—hundreds of miles in extent—through which no aircraft could approach undetected. Not even the British public knew of its existence.

Its future, in peacetime applications, is one of almost fantastic potentialities.

The entire strategy of air defense has been changed by it.

For effective defense—as the Battle of Britain proved—it is not enough merely to detect approaching aircraft and to know their distance. Efficient fighter interception demands three-dimensional location of the enemy—distance and direction plus altitude, and an estimate of the numbers. Radar provided the answer to all three, and gave all the essential data to enable British air defense to win the Battle of Britain against great numerical odds.

After determining the position of an aircraft the first problem was how to make friendly aircraft continuously exhibit a difference from others in their "radio" responses. This was accomplished by giving coded alterations of the returned echoes. These devices are known under the generic term "I.F.F." (Identification, Friend or Foe).

How Radar "Sees"

Radio detection and ranging, or "Radar" as it has become known, is the generic name for various radio techniques based on the use of radio echo.

To give a simple analogy, a person standing not far from a cliff can usually get an audible echo from the cliff by shouting toward it. The nearer the cliff, the shorter the time interval between the shout and the echo.

Radar works on a similar principle. But a radio wave is used instead of a sound wave or shout and the returning echo wave is picked up by a special radio receiver instead of the human ear.

The indicator used to display echoes returning from aircraft was the cathode ray tube, and many improvements were made in this device in the course of its transition from a delicate and expensive piece of apparatus of somewhat uncertain behavior and a short life to a precise instrument, some 50 times better in performance and costing as many shillings as its predecessor had cost pounds.

The earlier techniques of radio location involved a signal display in the form of a bright line across the face

Radar contributed more to victory than any other single development of World War II and, with the exception of the atomic bomb, was the most effective and sensational development.

*British Information Service.

of the cathode ray tube, the aircraft echoes being signalled by a V-shaped projection—a "blip"—above or below the line. The distance of this "blip" from one end of the line was an accurate measure of the distance of the aircraft causing the signal.

Mobile Radar

The large aerial system used for the coastal chain was not adapted to naval or military purposes. Higher frequencies (hence smaller aerial systems), however, made possible the development of compact equipment which could be mounted on the masts or superstructure of ships, in a mobile trailer, or on a searchlight.

The detection of hostile warships from aircraft, the warning of our ships of the approach of enemy aircraft, the defense of harbors and coasts against small enemy vessels, the feeding of gunnery data to predictors from radio location equipment, the control of searchlights by radio location so they could unmask with the certainty of illuminating the aircraft target immediately —all these (though later improved) were accomplished facts by the outbreak of war in September, 1939.

It was realized that if fighter aircraft could be made to carry a complete miniature radio location station, they could seek out and even fire on enemy aircraft on the darkest night or in a cloud. A windscreen was developed for mounting on the plane and on which the enemy echo indicated itself as a spot which grew "wings" as the enemy approached and moved up or down, to port or starboard—just as the appearance of the enemy itself would have done had it been visible.

On many occasions, successful interception was first marked by the appearance of the telltale green spot on the windscreen somewhere away from the fighter's line of flight. The pilot would make a rapid adjustment of course and altitude to bring the spot ahead and centered. Then the spot would develop "wings" as the distance lessened. Finally, the real enemy would appear as a dark shape in the night sky, just where the green outline hovered.

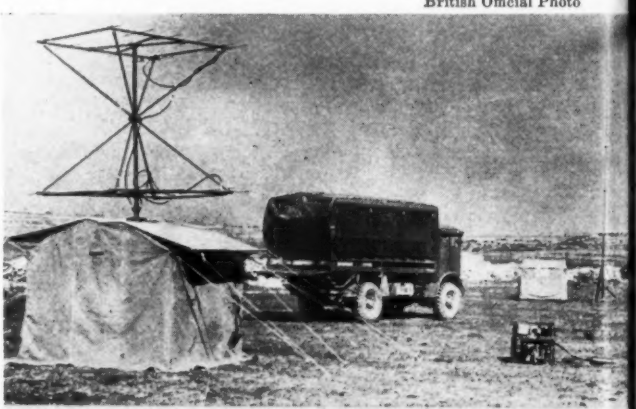
A burst of fire from the fighter's guns, and a successful interception was almost certain.

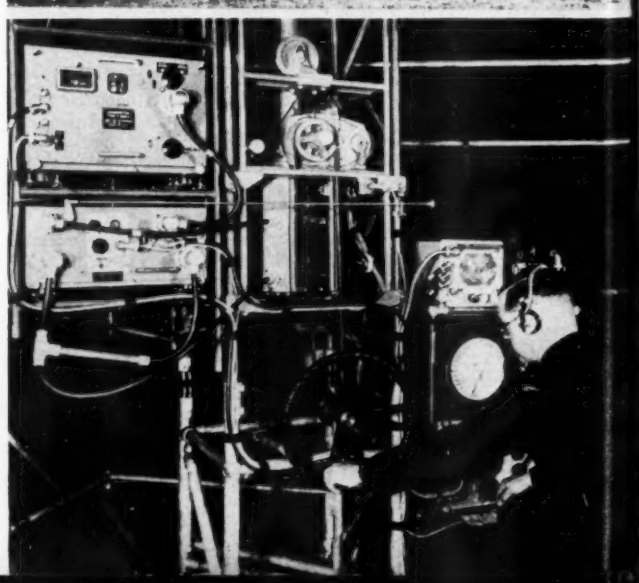
The toll of German bombers rapidly increased after radar was installed in night fighters. By early 1941, the first sets had been put in. In the whole of January of that year the number of enemy bombers which fell to the British night fighters was 4. The destruction of one bomber in a raid made headlines in those days. But, after dropping to three in February, the figure leapt to 24 in March, 52 in April and 102 in May. Then the attacks dwindled. Losses became so great before Hitler started his attack on Russia that the Luftwaffe could no longer afford them.

Other devices indicated the precise altitude of an aircraft above the surface of the ground and gave warning to ships of the proximity of mountains, icebergs or other vessels.

Others found towns for bombers on the darkest

Exterior and interior of a British radar warning station is shown. It was developed to meet the need for a highly mobile equipment which could be transported quickly to sites which could not be reached except by light units.
British Official Photo





RADAR NAVIGATOR*

An electronic navigator for ocean, lake and river ships, that will detect above-water obstacles such as other vessels, icebergs, land, lighthouses and buoys by radar, is under test on shipboard by the U. S. Maritime Commission.

It will detect these obstacles through darkness, fog and storm at distances up to 30 miles, depending on the size of the object.

The tests are being made on the SS American Mariner, *training ship of the U. S. Maritime Service. Additional sets will be placed soon on other vessels.*

**The Washington News.*

British Official Photo

Gunnery radar in a cruiser. Operator turns the handle to align the radar echo with a marker and so to transmit the range automatically to the guns. A sample image has been painted on the screen for the purposes of reproduction.

cloudy night, and even displayed a moving map of harbor details, railway lines and similar features.

It became possible to project optically a map, aircraft indications and hand-written plots all together on a translucent screen. The dream of many commanders is realized in this—the power to sit in a room at headquarters and see all the movements of hostile and friendly aircraft displayed before them on a map.

The extraordinary and immediate success which followed the introduction of bombing with the aid of centimeter-wave radar deserves particular attention.

The sound strategic decision was to withhold the use of such devices until enough had been produced to make a succession of devastating attacks on Germany's great industrial centers. The premature loss of one such device to the enemy might have destroyed the element of surprise which made impossible the enemy's effective reply.

The proportion of bombs falling on worthwhile targets was greatly increased and other offensive and defensive functions of aircraft fitted with radiolocation devices were made much more effective.

Statistical analyses of operations show that an aircraft so fitted is worth at least five without these aids.

Exchange of Data

After the United States entered the war, no war secret of Great Britain was withheld from her. The disclosure of all British progress in radar to date had been made to the United States in August, 1940.

Under the stimulus of war, the United States quickly built up a research organization and manufacturing facilities far larger than Britain's. Ingenuity in manufacturing methods, peculiarly American, enabled supplies of radar equipment to be made available to the Allied Forces in the great quantities needed for the successful asault on the Reich, and for the war in the Pacific.

The fact remains, however, that Britain put radar into operational use earlier and on a far greater scale than any other country in the world.

In both countries, prediction was often ahead of experiment. Experiment, too, frequently was ahead of production. The evolution of improvements progressed so rapidly that it was sometimes necessary temporarily to "freeze" development to permit large-scale production.

Although enemy countries followed in our footsteps, they never caught up with Allied developments, many of which must still remain secret.

Radar—In Brief

Radar solved problems of defense and attack, and in the air made possible the crippling of Germany by nonstop bombing.

Radar has been used during the war so that:

(1) RAF bombers could take off, navigate and return from mass saturation raids with minute accuracy, fixing positions on special gridded maps by aid of what are known as "Gee" signals from ground radar stations. This system changed the number of bombers that could be put over a target in an hour from 100 to 1000.

(2) Another system entirely self-contained in a bomber made it possible for the crew to "see," in miniature, by means of radar reflections from the ground, despite darkness or fog, outlines of a coast or town they were approaching.

(3) Perhaps the most fantastic installations of all enabled ground radar operators sitting in England to guide individual bombers to enemy positions, "see" when they were precisely over the targets and then signal for the bombs to be dropped. This method accounted for the deadly accuracy with which the big guns on the invasion coast were destroyed before D Day. It was also used against Essen and other Ruhr targets.

Picture on a Tube

Still more bombing aids were developed, and these met the need for accurate bombing at any range. A startling device was in use which enabled a navigator to see, on a cathode ray tube screen, a picture in glowing green spots and shadows comparable to a map of land, water and built-up areas over which he was flying,

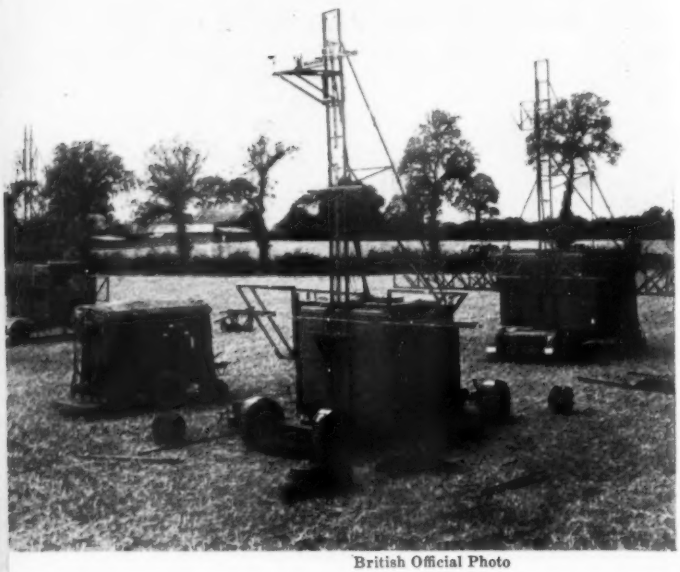
even in complete darkness. Using this set in July, 1943, Hamburg, in 4 successive raids by 2,630 aircraft, was three-quarters destroyed in damage greater than the total suffered by all the towns in the British Isles from German aerial bombing.

These were early sets, and the picture produced on the tube was not good enough to single out clearly various areas of a big target like Berlin. By November, however, a newer set was produced which showed extra detail and enabled the decisive Battle of Berlin to start.

As Germany crumbled under the weight of Allied bombs the question of invasion came to the fore. For the ultimate success of D Day, it was essential that the enemy's heavy guns along the Channel coast of France should be silenced. Forty of these were within range of the selected invasion route and it was necessary for the Bomber Command to silence them. In order not to reveal the area where the landing would take place, they had to attack heavy guns along the entire coast. On the night before D Day not one of these guns fired. They all had been silenced by bombs released from a height of over 20,000 feet by aircraft using signals from England.

Another radar story is of the "Rebecca-Eureka" combination, secret of the airborne force, which guided hundreds of parachutists and glider troops to their objectives on D Day. This was a development which grew out of the family of automatic beacons or radar "signposts" devised by scientists for such purposes as guiding the navigator of an aircraft searching for a friendly airfield or shipping convoy. Many of these radar beacons, erected on the ground or aboard ship, worked only when a coded radar signal of the correct wave length reached them from the searching aircraft. "Eureka," which was the name of the beacon used by airborne troops, was dropped by parachute with the first wave. It was unpacked and assembled often under enemy fire. Later gliders carrying the other half of the equipment, called "Rebecca," could pick up the signals from "Eureka" and so make sure of arriving at the right spot. In other words "Eureka" marked the spot and "Rebecca" led the aircraft to it.

Radar equipment of a British Army mobile heavy antiaircraft regiment is shown against the backdrop of an English farm. Receiver, generator are in the foreground, transmitters in background. Radar changed war's tactics.



British Official Photo

Radar at Sea

From the start of the war it was appreciated that the detection of surface submarines demanded some means other than Asdic. The radio location equipment designed for the detection of aircraft was found inadequate for this purpose, and the centimeter-wave equipment ultimately provided the decisive solution for the detection of submarines by air and surface ships.

Consider the achievement of finding on a pitch-black night, in an area of many square miles of sea, a piece of metal projecting from the water's surface for little more than the height of a man.

Naval radar has revolutionized warfare at sea. Perhaps the greatest tribute to it was made by Admiral Doenitz, then commander in chief of Germany's submarine fleet, when he made a speech at Weimar during a lull in the U-boat war.

"The enemy," he said, "has deprived the U-boat of its essential feature, the element of surprise, by means of radar. With these methods, he has conquered the U-boat menace. The scientists who have created radar have been called the saviours of their country. It is not superior strategy or tactics which gave him success in the U-boat war, but superiority in scientific research."

The British Admiralty considers that the application of radar to anti-U-boat warfare was the most important single factor in ensuring the defeat of the U-boat and consequently in winning the vital Battle of the Atlantic. The detection by radar of so small an object as a submarine periscope or conning tower in the water considerable distances away was thus one of the major events of the whole war.

In gunnery, radar meant that guns could effectively open fire at greater ranges and engage unseen targets, both surface ships and aircraft, with accurate ranges to within a few yards. The 26,000-ton *Scharnhorst,* sunk in 1943, was detected first by a British cruiser at a range of 17½ miles. Contact was lost for a time, but was reëstablished by radar at 17 miles. Until the arrival of *H.M.S. Duke of York,* the *Scharnhorst* was shadowed by a destroyer force, which relied entirely on radar and kept outside visibility distance.

Plots Shell's Fall

It may be added, as a tribute to the sensitivity of these sets, that the actual fall of the shell can be plotted

by radar; the water thrown up by a falling shell gives a sizable "echo" which can be plotted in relation to the target. The whole system of "spotting" in gunnery can thus be taken over by radar, with a consequent elimination of guesswork and the errors and uncertainty of visual judgment.

Radar also proved of inestimable value in the assault landings in North Africa, Sicily, Italy and Northern France, where its efficiency for navigation assisted in the control of the enormous masses of shipping which arrived and assembled at the beachheads. On countless occasions radar solved problems of navigation and weather, and enabled assault forces to be put ashore at an exact spot exactly at the required time.

Radar saved many lives, too, in "air-sea rescue" operations; it has guided rescuers to airmen adrift in rubber dinghies or perched on the wreckage of their sinking planes.

Radio Navigation

At sea, in the air and even on land radio navigation is now possible with an accurracy which makes the finest achievements in stellar navigation seem grossly inaccurate by comparison. A ship's navigating officer is considered good if he can fix the position of a ship at sea by stellar or solar observation to within about a mile of her true position. An airplane can seldom rely on better position-finding by astronomical observation than within 10 miles of its true positon.

Yet it is now possible by various devices to have a continuous indication of the position of a ship or airplane to within a few yards of its true place on the earth's surface. Indeed, no map or chart can be printed with sufficient accuracy or permanency to vie with the possible accuracy of the equipment.

Gun That Aims Self

One of radar's most uncanny developments—a gun which aims itself and follows a moving target automatically and unerringly—was the climax, in 1944, of the British Army's research into radar applications.

This British invention was incorporated into United States equipment and quantities were manufactured and shipped to Britain, just in time to shoot down 80 per cent of the flying bombs which were destroyed by antiaircraft batteries.

Other Army radar developments were coastal guns which, at 20 miles range in the dark without the aid of a human eye, have sunk 11 out of 18 German ships.

Artillery radar is now so accurate that its error is less than the ballistic error of the guns. This means that if the target is not hit "blind" with the first shot, it is the gun itself, or its charge, which is not quite accurate—not the aim.

Finally, it can be disclosed that a somewhat different—but related—technique gives the measure of the speed of an object relative to the observation station. This is so sensitive that a single infantryman wriggling along the ground many yards away, or even a pebble kicked towards the equipment, will give a response. A tank, moving camouflaged and at night along a distant road, will stand out clearly from the background of fixed road and countryside.

Combat uses of radar still are being developed.

* * *

American Uses*

Without radar the Eighth Air Force never would have been set up in Europe; radar guaranteed enough control of the weather factor to justify building up this massive bombing organization. It hoodwinked the Japanese all over the Pacific during almost 4 years of fighting, made possible the spectacular naval victories around the Solomons and put the finger of destruction on almost every one of Japan's big fighting and merchant ships.

Aboard ship, radar's information is synchronized with fire-control mechanism to shoot up enemy vessels many miles away, targets never seen except on the radar "scope" or screen. When BTO radar equipment (bombing through overcast) is tied with the bombsight it does the same thing; drops the load on a target that's never visible, separated from the attacking plane by thousands of feet of clouds, darkness or smoke.

Radar goes under the water, too. An American submarine prowling the Pacific can pop its radar antenna out of the water, ascertain the range and speed of a Jap ship and let go its torpedoes. Can do it—and has, perhaps hundreds of times by now.

B-29s today are described as flying electronics plants, with every valuable phase of radar equipment worked into their compact sets. Radar helps them to bomb, to navigate, to keep formation. In addition, it warns them of the approach of enemy fighters, and when necessary can take them down through overcast and fog and land them safely on emergency fields the pilots have never seen, such as Iwo Jima.

General Claire Chennault's Liberators, flying out of China, piled up a colossal total of Jap shipping, thanks in large measure to radar.

Now, our scientists believe, we are miles ahead of the Japanese on radar. The margin was not so great in the battles around the Solomons but enough to account for a few sensations.

The cruiser *Boise*, going it on radar, fired 100 5- and 6-inch shells in 27 minutes, and sank three cruisers and three destroyers.

The cruiser *San Francisco* ran right through the middle of the Jap fleet at night, firing on both sides as she raced along. Confused Jap gunners started shooting at each other. Before it was over, 27 Jap vessels were sunk, mostly by one another's gunfire.

*George Counery, in *The Washington Post*.

General Hawkins' Notes

WELL, the war is over. Both the army and navy have won glorious victories and coöperated with each other in the most commendable way.

In consideration of the splendid success of our armies it would seem like carping criticism to pursue the subject of most of these *Notes* which for 8 years have been urging the maintenance and use of cavalry in our army. The high authorities in the army decided against this proposition and suppressed our cavalry at the outset of this war (except in the form of mechanized troops). As such, our cavalry regiments have engaged in field operations and battle against our enemies in the most gallant and efficient style. Cavalry officers detached to serve with other branches have distinguished themselves in a manner that justifies great pride and satisfaction in the hearts of all the old cavalrymen who are retired or were too old to take part.

The fact that military successes in our army without the use of horse cavalry does not alter in the least my opinion that such cavalry in large numbers could have been used to great advantage in tactical operations which would have saved both time and losses. But it is all over now and there is little use in pursuing the subject, except for those academic discussions in the future which may interest military students and historians who like to delve into the secrets of past wars and into the reasons which have actuated the leading personalities in their decisions and activities in the conduct of those wars.

The development of the atomic bomb in the very last phases of the war against Japan may so alter the whole subject of weapons and tactics that it may be useless to speculate now on these subjects. What the future holds forth, no man can tell. Perhaps war itself may become impossible without such utter devastation that the scientific answer to the question of how to stop war has already been found.

Under these considerations, it seems futile, at least at this time, to discuss military operations and tactics as we understood them before and during this last war. The object of these *Notes* has, therefore, disappeared. And it is perhaps time for me to offer a somewhat sad and grateful farewell to those who have in the past been patient and curious enough to read my contributions to The Cavalry Journal for what they may or may not have been worth.

To the Editors and staff of The Cavalry Journal I am very grateful for their help and patience shown me during the last 8 years. And so, this is a termination of the regular appearance of my *Notes*.

The Cavalry Journal,
September 18, 1945.

My dear General Hawkins:

It is with a sincere feeling of nostalgic regret that we publish your last regular contribution to The Cavalry Journal. I am sure that this feeling is shared by all of our readers who have followed your *Notes* in the past 8 years.

You can be justly proud of the inspiration you have been to the younger officers who have been so fortunate as to come under your guidance and leadership during your years of active service. You can also gain a great deal of satisfaction in knowing that the ideals and wisdom you have attempted to impart to our cavalry officers through your writings have not been in vain. The responses to your *Notes* that have been received by The Cavalry Journal have attested to that.

We earnestly hope that although you do not find it possible to continue with your regular *Notes*, you will from time to time be able to give us a special article.

With best wishes from the staff and my own best personal regards, I am

Very sincerely,

Edwin M. Sumner,
Colonel, Cavalry,
Editor.

Editorial Comment

General Jonathan M. Wainwright

Citation

Citation, the Congressional Medal of Honor: "General Jonathan M. Wainwright, commanding United States Army Forces in the Philippines from 12 March to 7 May 1942, distinguished himself by intrepid and determined leadership against greatly superior enemy forces. At the repeated risk of life above and beyond the call of duty in his position, he frequented the firing line of his troops where his presence proved the example and incentive that helped make the gallant efforts of these men possible. The final stand of beleaguered Corregidor, for which he was in an important measure personally responsible, commanded the admiration of the nation's Allies. It reflected the high morale of American arms in the face of overwhelming odds. His courage and resolution were a vital inspiration to the then sorely pressed freedom-loving peoples of the world."

THE return home of General Wainwright has been characterized by an official and public welcome such as has never before been accorded a returning hero. But mere words are inadequate to express the feelings of all of us who knew him so well. The wisdom, strength, faith and courage displayed by him in military adversity and during the following years of imprisonment by the Japs is worthy of emulation by all Americans in the years to come. For The CAVALRY JOURNAL and all of the multitude of his friends in the cavalry may we say "God Bless you, 'Skinny,' it is wonderful to have you back home."

* * *

Leadership*

by 2d Lieutenant Alvin J. Willink

MAN'S recorded history is a comparatively short one. Before he came, this old earth was dominated by animals whose instinct led them only to survive. He, however, was destined to rule. In these few thousand years of which he has made a record of events, we have seen nations rise and fall; we have seen success and failure; we have seen his weaknesses and his triumphs. In every age, man has been striving to improve his standard, but it has been the minority who have recognized abilities, who have made that something we call progress.

I like to think of Moses as a great human definition of this thing we have come to know as leadership. He had a passion for the interests of his people, under bondage and persecution of Egyptian pharaohs. Out of those hundreds of thousands whose backs were bent under slavery, there was a man imbued with a sense of duty, for he recognized the worth of the individual.

He knew his thoughts, he shared his sorrows and privations; he held his confidence, and when he went before the pharaohs seeking deliverance for his people he was disregarding the personal issues at stake—his life—for the sake of his people. Then with cool and thoughtful actions and yet with resolution and determination Moses led his people to higher ground.

The world has seen others with those same qualities who chose to use them for personal gain, but the law of retribution has continued to work. Alexanders, Caesars, Napoleons and Hitlers have had their day. True, they were great men, but their ambitions led to oblivion.

From these thoughts, I believe we may briefly view those things which constitute leadership. Dictionaries tell us one thing; diplomats give us another; military men herald their ideas—all a little different, but all meeting on a common ground.

Foremost is character. Character has a beginning in the little habits and motives initiated in youth. Those habits grow and in the final integration with everything else a man is, there is character. Does he know the things that are right or wrong? Does he believe in them to the extent that they become honest convictions, radiating into the lives of all with whom he comes in contact? Does he win his way into the minds and hearts of men, seeking to understand their thoughts, their problems, their aspirations? Is he a friend who is true, who feels his responsibility in taking them into places of danger, facing everything bravely, not letting them down when the going is rough? Does he have pride in his men and does he recognize and praise their accomplishments? Character—it's first in leadership.

That man who leads must have intelligence—knowing more than he expects his subordinates to know, knowing what to do in an unexpected situation, where to employ what he has at his disposal.

In war, morale has great fluctuations. Here, too, is a component of leadership; for the man who establishes morale and keeps it stable has behind him men who are willing to follow at all events. When the going's tough, all will stand. "Where there's a will, there's a way." A leader will create that will to pull them in whatever direction he chooses.

The world has always needed its leaders to lift the less fortunate. At present we stress leadership in war, but look to a better day of peace. More than ever we are going to need men who can "take it and grin," for in them we have hope for the aspirations of a free people and of a better world.

*Prize-winning essay in O.C.S. class 79, graduated August 4 at The Armored School.

Letter to Drew Pearson

Chinese Combat Command
APO 280
c/o PM, N.Y., N.Y.

Dear Mr. Pearson:

I have just received a clipping written by you in a newspaper article dated 26 June 1945, which was sent me by a friend in the States. In this particular article you inferred criticism of the War Department for including in their appropriations several thousand dollars for the cavalry's horses. You further stated that not a single cavalry operation has been used in the entire war.

I then ask have you ever heard of the U. S. 26th Cavalry? They are the cavalrymen who fought such a splendid delaying action on Bataan in the early days of the war. They used their horses very effectively from all reports. Probably Cavalryman Lieutenant General Jonathan M. Wainwright can give you more on the subject when he is released from the Japanese. That is one incident when there was an American cavalry operation in this war.

Animals, particularly mules, were used in the bitterly fought battles in the mountains of Italy and on some of the larger islands of the Pacific. Here in China today, animal transportation is one of the most important phases in army supply due to the terrain and lack of roads.

Both the Germans and the Russians used horses in both cavalry and artillery with great successes in various phases of the war. It is true that the Russians are surely busy with new war weapons and developing present ones, but I am sure that they are not neglecting their cavalry in the least.

I fought with the 124th Cavalry of the Mars Task Force during the campaigns to drive the Japs out of Northern and Central Burma. Here we found both our horses and mules indispensable. Here, our operations would have been impossible without them. For hundreds of miles we went through jungles and mountains where no vehicles of any sort could go, not even the Army's famous little "jeep." All of our heavy equipment and supplies were carried by American horses and mules. Horses transported portable surgical hospitals with equipment that saved many American lives. Without this animal transportation we could not have had that splendid medical support. Our successes were to a large extent due to the fact that we were able to get our forces and equipment, and keep them supplied, in areas and positions the Japs thought impossible because of terrain and weather conditions. We were able to be there with our equipment because of our animals. Without them it would have been hopeless. Thousands of American horses and mules were used in the Burma campaign.

Politics tend to always split ideas into a "pro and con" or "this versus that" attitude by those concerned; ex. a horse vs. tank. That is not the way those of us down in the companys and troops who depended with our lives on our animals for success in battle look at it. It is quite evident that a horse cannot do what a tank can, but it too is evident to many of us that a tank or vehicle cannot replace a horse or mule. Actually tanks never replaced the horse, for they are used against new obstacles and weapons that the horse soldiers never opposed. Those fine points of maneuver and transportation over rugged terrain which the animal units have still stand. For it has been proven again that there are still places to go that the tanks can't go. In other words, animal units still have the same advantage over other units that they've always had.

Now, our attitude is not one to lower the ability and accomplishment of our airplanes, tanks, etc. We fully realize the magnitude of their part in the war, for only a mentally incapacitated person could fail to. But at the same time, realizing that animal-borne units play a very, very small minute part in modern war, we *do* realize that they play a definite part. A complicated machine has many cogs and wheels aiding in its operation, but it may be the wearing away of one little cog that causes it to cease functioning. True, the large parts play the great part in the mechanical operation, but that little cog still does its work. It is so small that you don't realize its value until you find yourself without it.

The use of animals in modern warfare doesn't seem to be quite understood by most people. There's the tendency to think that where airplanes, rockets, etc., start, the horse and mule end. That is not true, for we used bazookas, rockets, heavy mortars, and many other new weapons in our mounted outfits. And we couldn't have used them unless we had had our animals to transport them with. These weapons don't replace cavalry and mule infantry and artillery; they become a part of it just like they become a part of motor transported infantry, tanks, and air forces. Modern animal units are a far cry from the ones in years gone by. They develop new weapons, new tactics, and new uses just as other types of combat organizations do. And on top of that, we don't stop where the air corps starts. We work together. Our supplies were parachuted to us from planes which brought it to us from bases hundreds of miles away. Then our animals carried them to us and transported them wherever the tactical situation demanded. True, without those C-47's we could not have gotten our food and ammunition and other supplies but it is also true, that they would have been of no tactical value to us if we had not had the mules and horses to move them to where they could be employed against the enemy. It is also interesting to note that in certain operations, further coöperation between animal combat units and the air forces was obtained when hundreds of mules were flown to areas where needed by air transportation.

There are great numbers of officers of higher rank who could spend much time on this subject, but I, as are many other company grade officers, am interested in

it because we have actually seen the value of our animals in combat. We believe that it would certainly be a mistake for the army to forget animal units entirely. For in this war we have found in our own outfits on many occasions a crying need for men experienced and better trained in animal management, and the proper care of animals is a most important thing in animal units. We strongly believe that the postwar military plans should have in it better and improved training in animal management and employment of animal combat units. For mechanics are just as out of place in the cavalry as a veterinary technician in a tank battalion. Let's train them both, for we can't predict the future. Who knows what terrain we will fight on in the next one? It might be on terrain such as in Burma and Italy. There's no way of telling, for much of that type of country is in our own hemisphere. So, we feel we'd better stay prepared for *anything*.

In short, I am trying to say that a person cannot come to a conclusion that animals aren't needed in the future and weren't used in this war if he looks at the entire war. If he looks at the European campaigns only, maybe so. But please remember that American soldiers sweated up trails and mountains with mules and horses against the enemy, that American blood was spilled and American lives were lost in other places besides Europe. Men and officers of outfits such as Merrill's Marauders and the Mars Task Force can tell you of practical and valuable use of our animals in this war. By all means, cavalry, "jackass" infantry, and pack artillery should be considered in our postwar military plans. Don't you really agree?

I know that you are very busy, and that there is a great possibility that you shall never see this letter personally, but if you do, and your time permits, I would sincerely appreciate an answer.

Very sincerely yours,

BENJAMIN H. CARPENTER,
1st Lt., Cavalry.

* * *

Let's Face the Facts

by Colonel Roy W. Cole, Jr., U. S. Cavalry

NOW that the war with Japan has ended, a group of young and vigorous cavalry officers who have earned their spurs in combat will return to the States, clamoring for new assignments. The majority will endeavor to secure a detail which will further reputations already well established in their chosen career. The degree of success open to these deserving officers depends on the prompt solution of a problem unique in the annals of the mounted arm. It is time to face the facts—the existence of the cavalry in all its name implies hangs by a very slender thread.

What are our officers doing today? Through the unavoidable exigencies of war, save for a few old faithfuls guarding the North Gate at Riley, they have been weaned away from the cavalry. They serve, in what General Krueger proudly calls the "incomparable infantry" of the 1st Cavalry Division. They serve in the veteran mechanized reconnaissance squadrons and superb armored divisions now being redeployed after their European victory. Throughout the world they serve on staffs of all denominations, sizes, and descriptions, daily demonstrating the thoroughness of their training. Nowhere on the horizon does one see the nostalgic "low, thick cloud of dust" which, according to the "Tactics and Technique," means a mounted column. The cavalry of today, therefore, is that in name alone. Actually it is infantry, armor, and spare parts. In summation it appears that everything points to a gradual and inevitable strangulation of the arm. This, then, is the combination of circumstances which causes cavalrymen of staunch heart to shudder with dismay when asked, "What is going to happen to the cavalry?"

Nobody knows the answer, so it seems. As far as cavalry officers overseas can determine, their future careers are nebulous somethings engulfed in a universal and abysmal ignorance resulting not from apathy but from the lack of an announced policy.

Paramount is the all-important question ot whether cavalry shall exist in name or in actuality. For detailed reasons too numerous to mention but inseparably integrated with tradition, accomplishment and combat necessity, it seems logical to assume that as long as we have an army, we will have a cavalry. Only its form seems in doubt. We should have cavalry because a branch and a way of life which produces leaders like Patton, Truscott and Mudge cannot be discounted without incomparable potential loss. We will have a cavalry because the battle-tried veteran officer of today is qualified as never before to assist in the recuperation of our arm after the War Department has performed the necessary surgery; because the accepted standards of the mounted arm over the years of our nation's wars have been equalled in valor and surpassed in versatility of our troopers of today. In the modern army to be maintained by our dynamic country after this war, should we not include the additional safeguard to our balanced ground force of a mounted arm? Should we not continue to maintain a cavalry component which like its associates will be second to none in personnel, arms, equipment and indoctrination?

It has been stated that cavalry is fighting as infantry or armor. Assume one is an officer of the regular establishment or one aspiring to a permanent commission, what do the coming years have in store? It is an established fact that one's combat record will largely determine the success or mediocrity of one's subsequent career. Should the cavalry retain its name but be absorbed by the armored force, hundreds of infantry-trained officers who have fought through the great battles of the Pacific war will be lost to the arm. Their combat experience will avail them little and should they remain faithful to the crossed sabers, except for certain staff-trained individuals or outstandingly su-

perior commanders, they will perforce be passed over and rightly so. It would appear that the dismounted cavalry officer with such a background may find his best opportunities with the infantry. Conversely, should our cavalry be doomed to fight dismounted, then the equally valuable services of our mechanized-trained officers will be lost to the branch and their sole salvation would be in the waiting arms of the armored force.

In this war, our cavalry officers have lived up to their heritage and in the next they inevitably will do the same. Do they not deserve to decide the trend of their future careers while the time is right rather than wait for an uncertain future to force the decision upon them? If we are to be infantrymen or tankers, tell us so we can make our plans and compose our souls. If there is a fighting chance for a fighting mounted branch, encourage us to the end that our experience and ideas can assist in its revitalization. Surely there are cavalrymen who in time of war prepare for peace that future wars will be victorious. Strengthened by an abiding faith in the future of cavalry and inspired by the challenging regimental motto "Suivez Moi," may they show us the way toward an enduring and successful career.

The Charge of Okinawa*

THROUGH the red, soupy swamps and the rice paddies came the Marines, not on foot or in tanks, but like Cossacks, booting their horses into the fray. Instead of swords they brandished flame throwers and charges of TNT. They rode through the northern reaches of the island in what historians may speak of as the Charge of Okinawa.

Mounted on native steeds commandeered from the countryside, the horsemen formed a highly mobile unit that in 7 days pushed remnants of retreating Japs 9 miles farther northward. They did it by flushing out caves and pillboxes with flame and dynamite. The horses made the work quicker, and more terrifying to the pedestrian enemy.

It was spectacular, and fun for the Marines, with one possible exception. One guy's horse enthusiastically took a 6-foot cliff in his stride. Down went the rider with an armful of explosives, his heart in his mouth. He came up unhurt, but that didn't stand much in the way of his getting back to the foot soldiers, posthaste.

Soviet Cavalry Against the Japs

Soviet Cavalry was on the move again during that nation's brief war against Japan. During the period of the week that Russia fought Japan press dispatches that told of the success of Soviet cavalry followed one another to the world's front pages.

Soviet cavalry, Mongolian cavalry, and Cossacks—previously so feared by the Germans—in coördinated attack with tanks, swept easily through the Manchurian Japanese army.

Excerpts from Soviet releases which told of the part played by cavalry follow:

Aug. 9 (AP)—The Red Army's Stalin tanks, infantry and massed cavalry rolled through numerous gates in Manchuria's defenses with sensational advances today, Moscow dispatches reported, and Tokyo announced the broadening of the Soviet attacks to Korea and Sakhalin Island. . . .

As waves of Russian infantry, tanks and cavalry, backed by massed artillery, battered into Manchuria from the east, west and north in a huge pincers operation against the Japanese Kwantung Army, Moscow reported swift initial gains. . . .

London, Aug. 10 (AP)—Using tactics proved in the war against Hitler, Generalissimo Joseph Stalin's armies made their deepest slash into Manchuria in the northwest.

Tanks and cavalry following infantrymen manning armored trains surged 93½ miles from the Russo-Manchurian border area north of Hulun (Dalai) Lake and captured the rail junction and five-way highway junction of Hulun (Hailar), Moscow's broadcast said.

From Hulun, the Russians battered another 12½ miles into the 2,660-foot-high foothills of the Great Khingan mountain range barring the path to the central Manchurian basin, and tearing out a total gain of 106 miles. . . .

Some 130 miles to the south, tanks and cavalry swept across the arid, almost waterless desert land east of Lake Bor and, pushing far beyond the Outer Mongolian border, again reached the foothills of the Great Khingan range.

. . . For 180 miles south of Foyuan, the Russians were battling across the eastern frontier of Manchuria in rapidly spreading fighting, spearheaded by big Stalin tanks and hard-riding Cossacks. . . .

Siberian horsemen and tank-tipped armored spearheads, breaking across the great Khingan mountain range with its 8,000-peaks, emerged on its eastern slopes at a number of unidentified places and plunged toward Harbin from the northwest. . . .

London, Aug. 12 (UP)—The Soviets last night revealed that their tanks and Mongol horsemen had advanced more than 120 miles across the waterless wastes of western Manchuria in the fourth and newest of their offensives in the 6-day-old war.

Bursting out of the Nomonhan area of Outer Mongolia, the column by-passed the heavily-fortified railhead at Wenchuan, cut the Korean-Mongolian railway at Solun and swept on another 60 miles through the railway city of Wangyehmiao, 220 miles west of Harbin.

The advance completely outflanked the Khingan mountain barrier and the ancient Manchurian Wall to the north. It also narrowed the gap between the eastern and western arms of the Soviet pincers on Manchuria to less than 400 miles.

*The Leatherneck.

THE ATOM

The data for this story was obtained and compiled by Evelyn S. Drayton, Book Editor

Glossary

ATOM—One of the billions of almost inconceivably small "solar systems" of which the known elements of the universe are composed.

ATOMIC NUMBER—The number of excess nuclear positive charges or the number of planetary electrons of a unionized atom.

CYCLOTRON—Giant atom-smashing machine which scientists used for research.

ELECTRON—Negatively-charged particle which speeds in an orbit around the nucleus of an atom.

ISOTOPE—A variant of an element having identical chemical properties as the original element but atoms of different atomic weight.

MOLECULE—One or more atoms joined in chemical combination.

NEUTRON—Neutral particle found in the nucleus.

NUCLEUS—Center of the atom, containing one or more neutrons and one or more protons.

PROTON—The natural, elementary quantity of positive electricity when associated with a mass of atomic magnitude.

RADIOACTIVE—Capable of emitting spontaneously rays consisting (at least in part) of material particles traveling at high velocities.

URANIUM—A luminous white metal which comes from pitchblende and is found principally in Canada and Rhodesia.

URANIUM-235—Uranium atom having an atomic weight of 235.

URANIUM-238—Uranium atom with an atomic weight of 238—heaviest natural atom.

THE structure of the atom is best described by saying that it compares to our solar system, but in infinite miniature. The center, or sun, is the nucleus, around which revolve the planets, or electrons. The nucleus is composed of a conglomeration of tiny particles of two types: protons, which are positively charged; and neutrons, which are neutral. Thus all matter is made up of three things:

Electrons: negative charged, small weight.

Protons: same charge, 1840 times the electrons weight.

Neutrons: no electric charge about the same weight as protons.

These are bound together by tremendous energy supplied by the attraction between the protons in the nucleus and the electron planets.

Definite elements are known to be made of atoms which differ in the number of electrons. Thus, the hydrogen atom contains one electron, the iron atom contains 26, the lead 82. Going up the atomic scale adding one proton and a varying number of neutrons for each successive element we arrive at last at uranium. This heaviest element is invariably characterized by 92 protons and 146 neutrons, giving it a total of 238. Two other forms weighing 235 and 234 also occur in small quantities. These are called the three natural isotopes of uranium.

All known elements heavier than mercury have isotopes that are naturally radio-active. Their nuclei are so complicated that occasionally one will spontaneously simplify itself by shooting off a particle.

The atoms are so small that they run about 100,000,-

000 to the inch. The nucleus is a tiny speck 10,000 times smaller, but containing tremendous force, much greater than electrical force. The greater the atom the greater the force binding it together.

Scientists have chosen uranium for their experiments in atom-smashing because if one of the atoms of uranium is increased by one unit in the process of shooting with a neutron "bullet" it becomes unstable and smashes into two equal parts.

To smash an atom really means to produce a violent rearrangement in the tiny central nucleus. The difficulty of this becomes apparent when it is recognized that the atomic field contains a great deal of space, just as the solar system contains vast areas of space between its planets.

In order to smash an atom of uranium with a neutron bullet a motive power must be supplied the electrically negative neutron. This is sometimes provided by the use of the heavy hydrogen atom, which contains a nucleus in which a proton and a neutron are combined. When whirled in the cyclotron, or atom-smashing machine, the hydrogen atom hits the target—the uranium atom to be smashed—and the hydrogen nucleus breaks apart. The uranium nucleus, stimulated by the neutron bullet, may divide into two smaller nuclei of roughly equal parts. These fragments are not themselves stable, and quickly disintegrate to form still another nucleus. In fact, the whole series of transmutations generally follow the fission of uranium.

When the uranium atom is split in two parts and two lighter atoms are formed, they require less energy to hold together, the excess energy explodes and produces 200,000,000 electron volts. A far greater supply of energy than is required by the original projectile.

This apparently great amount of energy is by no means so tremendous when compared to the atomic universe. Unless the disintegration spreads to other atoms it cannot even be observed by the eye.

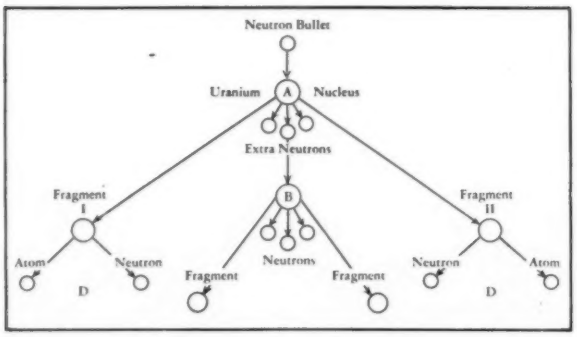


Diagram of the theoretical chain reaction for Uranium. The neutron bullet at the top splits the Uranium nucleus A into fragments I and II and in addition erupts three extra neutrons. One of the latter may hit another Uranium nucleus B, split it into similar fragments and neutrons C. Each of the first two fragments may break down into another atom plus neutron, as at D.

The neutron bullet must be slowed down to penetrate an atom of U235 and blast it. In order to produce a chain of disintegration the free neutrons must be slowed down from their usual pace in order that they may continue to strike and blast more atoms. This chain disintegration is necessary to produce the power required if atomic energy is to be productively useful.

Gamma rays emerge out of the blast that tears the uranium atom in two. These are powerful radiations that can tear electrons off of atoms and shatter them. This creates debris in the field of the atom and the chain of reactions is carried on by the countless neutrons being released from each split atom. In this process the neutrons are slowed and thus continue the process by striking atom after atom. In the course of these explosions a tremendous amount of energy is released.

Atomic energy, released through the splitting of atoms, differs radically from ordinary types of energy hitherto available to man in that it involves annihilation of matter. When an atom is split, part of its matter is converted into energy.

This is materially different from obtaining power by the use of a water wheel, or by coal or oil. In the case of the water wheel the water molecules taking part remain entirely unchanged. In the case of burning coal or oil a more intense process takes place. As the atoms of carbon, hydrogen, and oxygen are regrouped by combustion into new molecules forming new substance the atoms themselves remain unchanged—they are still carbon, hydrogen and oxygen. So far as can be measured none of them lose any part of their mass.

In the case of atomic energy, however, the atom itself completely changes its identity, and in this process of change it loses part of its mass, which is converted into energy. The amount of energy obtained is directly proportional to the amount of atomic mass destroyed.

According to current theory, it is the same energy stored in the atoms of the material universe that keep the sun radiating heat and light and the stars radiating their enormous quantities of light and heat for billions of years, instead of burning themselves out in periods measured only in thousands of years.

The sun is believed to obtain its energy through the partial destruction of its hydrogen, through a complex process in which the hydrogen is converted into helium. In this process 4 hydrogen atoms, each with an atomic mass of 1.008 (total, 4.032 atomic mass units), combine to form one helium atom, which has an atomic mass of 4.003. This represents a loss in mass on the part of the 4 hydrogen atoms of 0.029 atomic mass units, converted into pure energy. The amount of energy liberated in this process represents an actual loss of the sun's mass at the rate of 4,000,000 tons per second, a mere speck of dust in relation to the sun's total mass of two billion billion billion tons.

It is this power that scientists harnessed to develop the first atomic bomb. In this power there also appears the prospect of an ultimate flow of multiple benefits.

More Power for Cavalry

by Colonel Albert E. Phillips*

SOUND military strategists have always maintained that *every increase in fire power and armament increased the power and value of cavalry*. Even though planes and tanks were supposed to have sent the horse permanently to pasture, horse cavalry emerges from the war a strong, more powerful, more essential combat arm than ever. The strategists knew that planes could serve cavalry and cavalry could serve tanks. They also knew that planes were often grounded, and that there was a great deal of terrain which laughed at the internal combustion engine.

The modern motorized army called for horse cavalry, pack artillery and pack trains. The great war machine that rolled so rapidly to cut Sicily in two was halted for battle along the north coast road at Randazzo, temporarily stymied by a series of natural barriers, rugged mountains, precipitous ridges, gutted hills, and many rivers. The leaders of this army were, for the most part, cavalrymen—Patton, Truscott, and others—and they knew that on the flanks, horse cavalry has a field of its own that cannot be supplanted.

In Italy, it was a matter of operating against the enemy's flank and rear in mountainous terrain where horse cavalry was the only combat force that could move faster off the roads than the retreating German infantry could move on them.

No single large-scale operation was undertaken on the Russian-German front without active participation of Russian cavalry.

As recently as August 9th the Moscow radio reported that in the war against Japan: "We will use the same successful tactics we used against the Germans. Russian tanks and cavalry are everywhere." With air power leading, the Russian tanks and cavalry overwhelmed Japanese cavalry and other forces.

U. S. horse cavalry is a force apart from European cavalry, including the Russian. We long ago discarded the saber for the M1 rifle and have always used the packsaddle for all weapons capable of being packed. It

*U. S. Cavalry, Retired.

With the development of the recoilless rifle, the power of cavalry can be further increased. Shown below is the 75mm "kickless" weapon: it is 82 inches in length, fires a 14-pound shell more than 4 miles and is used from a light tripod.
Official Photo, U. S. Army Ordnance Depot

was the world's most powerfully armed cavalry and with the development of recoilless rifles we can now further increase that power by artillery fire.

The 57 and 75mm recoilless rifles provide terrific fire power for their weight, and thus will create new opportunities for cavalry, particularly horse cavalry. These rifles put into the hands of the dismounted soldier the striking power of artillery. More important, they may be used against tanks, and in close-up assault positions against pillboxes and snipers as effectively as at the longer artillery ranges. The rifles are capable of being packed and may be moved over rugged terrain at the speed of cavalry instead of the marching rate of pack artillery.

The 57mm Model 18 is 61 inches long, fires a high explosive shell weighing nearly three pounds a distance of two miles, and may be fired from the three rifle positions or from the .30 caliber machine-gun tripod. This rifle weighs only 45 pounds.

The 75mm is 82 inches long, fires a 14 pound HE shell more than 4 miles and may be fired from a .30 caliber M.1917-A tripod. It weighs 110 pounds. This rifle can be easily transported on one horse by pack. Both rifles are extremely accurate. Telescopic sights are provided for both direct and indirect fire with the 75mm.

If we concede that the army of tomorrow must be organized for wide dispersion and high mobility, then the need for horse cavalry is definitely proven. In the European theater alone the natural obstacles to armor were many, not even considering the man-made obstacles of tank destroyers, bombs, guns, mines, traps, and other road blocks. Officers of mechanized cavalry regiments in that theater were among the first to urge the incorporation of horse cavalry "where mechanized cavalry could no longer move with ease, such as in wooded areas, in crossing fordable rivers, and in circumventing mine fields." The ability to climb, especially in muddy and rocky terrain, might be added. Whereas the 4-wheeled drive vehicle climbs on all 4 wheels, the horse pushes with his hindquarters, and pulls with his forequarters. The legs do not work in unison, it is push and pull as needed. Another phase of the horse's tractive power is the ability to dig in and grip. As Kipling wrote:

"They send us along where the roads are,
But mostly we goes where they ain't,
We'd climb up the side of a signboard,
And trust to the stick o' the paint."

The fully integrated and self-contained division remains as the most adaptable unit in our army for a vast series of operations—a task force supreme—with infantry, cavalry, and artillery action and fire, to which the recoilless rifle is an invaluable addition.

For coöperation with mechanized cavalry, the horse elements should be lightly armed with rifles and light machine guns and, perhaps, with mortars and the 57mm recoilless rifle.

In the rage of conflict there is no team comparable to cavalry for knocking the enemy out of the hills, blocking him on the roads and striking at vital and critical points either alone, or in coördination with mechanized and armored units. There is also the typical cavalry tactic—the "in-and-out" actions, in which a relatively small force may inflict a series of damaging blows. If the enemy is without cavalry, all the more reason for us to have it. *We would not give up armored units because an enemy was not equipped with armor.*

With the assurance that we will never be less than first in the air and in armored strength, an adequate complement of horse cavalry will complete the trinity of the mobile arms. Instead of outmoding cavalry, planes and tanks have increased its value to a modern war machine.

If warfare has taught the cavalryman anything, it is that when the employment of cavalry is indicated and not used, there is a great loss of "time" resulting in heavier casualties.

From the great war of the machine age there emerges a composite military team, mechanized and horse for all the distinctive missions of cavalry, particularly those on the always critical flanks of friend and foe. With the advent of the recoilless weapons the cavalry has further improved toward its battle maxim fire power and mobility.

The 57mm recoilless rifle can be fired from the three rifle positions, and will shoot a three-pound shell two miles.
Official Photo, U. S. Army Ordnance Depot

The Recoilless Rifle

*by Colonel Rene R. Studler**

TWO spectacular new weapons—the 57mm rifle, M18 and the 75mm rifle, M20—have been recently standardized by the Ordnance Department. These rifles make available to our soldiers, individually and in small groups, weapons of artillery striking power and range at weights permitting hand-carrying and, in the case of the M18, shoulder firing. Enthusiastically received by service boards even in early pilot-model form, and battle tested in both theaters of operation, the recoilless rifles are already respected veterans in the field of firearms.

Both standardized types of recoilless rifles operate on the same basic principle—counteracting the thrust given to the projectile by permitting the rearward escape of a portion of the expanding gases from the burning propellant charge instead of by the conventional recoil mechanism of standard artillery. The idea is not new—it has formed the basis of an extensive patent literature covering a period of over 25 years. Successful application of the principle has, however, required solution of many complex problems ranging from highly theoretical interior ballistic computations to equally involved work in mechanism design. The resulting weapons are simple, rugged, lightweight, and powerful. In each a hinged breech containing a trigger-operated sear, hammer, and firing-pin mechanism and provided with Venturi tubes for gas escape, opens into a chamber of considerably larger diameter than the complete round with which it is loaded. The round consists of a standard type artillery shell and a cartridge case of conventional shape. The shell has a pre-engraved rotating band which engages the rifling of the weapon's bore on loading, and the cartridge case, which contains the propellant powder and primer, is perforated to permit the escape of gas, on firing, to the enlarged chamber and thence through the Venturi tubes in the breech to the outside air. A waterproof paper lining protects the charge prior to firing and assists ignition by requiring a small pressure build-up within the case before rupturing. Rotation of the projectile is counteracted by proper alignment of the Venturi tubes, and replaceable metering elements in the breech of each weapon provide for corrections of such unbalance as develops due to wear during the life of the rifle.

The 57mm rifle, M18 weighs approximately 45 pounds. It is equipped with a telescopic sight and with iron sights, both calibrated in yards. A combination shoulder rest and bipod permits comfortable shoulder firing of the weapon in standing, sitting, or kneeling positions. An extendable front handle provides steadiness in these positions and, with the bipod, provides a 3-point support for prone firing. The trigger is correctly placed for convenient firing in all three positions and safeties prevent accidental discharge of the weapon. One of the safeties is placed at the side of the chamber and must be operated by the loader before the trigger can be used to fire the piece—insuring the loader of an opportunity to avoid the blast zone. On firing, this danger zone spreads rearward from the breech with lethal intensity over a triangular area 50 feet to the rear. Ammunition in complete rounds weighs about 5 pounds per round, and is available in smoke, high explosive, and hollow-head antitank. These shells, matched for trajectory, weigh approximately 2¾ pounds and have a range of over two miles. Accuracy of this rifle is comparable to that of the .30 caliber M1.

The 75mm rifle, M20 is a 110-pound, 82-inch weapon which is normally fired from a standard machine-gun tripod. It is equipped with a telescopic direct fire sight and an artillery type panoramic indirect fire quadrant. Ammunition, in complete rounds, is assembled with standard 75mm artillery shell of weights averaging near 14 pounds. Rounds are loaded to match trajectories over the direct fire range and tables permit artillery type long range fire control. Maximum range for this weapon is over 4 miles and complete rounds average about 21 pounds in weight. Extreme accuracy is a feature of this rifle as well as of the M18, and it likewise produces, on firing, a triangular danger zone to the rear—approximately twice as large as that created by the smaller weapon. One safety prevents accidental firing of the piece—the size and arrangement of the rifle make a separate loader's safety unnecessary.

Both of these rifles were first employed tactically in the 17th Airborne Division's jump across the Rhine. The men who fought with and near these rifles in this operation developed a great affection and respect for them.

One 75mm rifle (with tripod and 8 rounds of ammunition) was hand-carried by a 5-man crew in support of an assault company during one day's advance in this operation.

Seven of the 8 rounds fired on this day were direct hits silencing fire from houses which constituted targets. The eighth round, fired at dusk, went through windows on opposite sides of a house without exploding.

Fifty-seven-millimeter rifles on this airborne operation immobilized three German MK IV Tanks with a total of 8 rounds at an average range of over 450 yards. A machine-gun nest was knocked out at 800 yards with one round and using iron sights on the same operation.

Later use of these rifles on Okinawa showed their value in positions inaccessible to standard artillery. One round from a 57mm rifle killed two Jap snipers in a dugout at 400 yards. At 1200 yards, 11 rounds from another 57mm rifle yielded 2 hits in each of two adjacent caves and effectively silenced artillery fire from these positions. Three direct hits from 7 rounds in a 5-foot x 2-foot cave opening at 1½ miles were chalked up by one 75mm rifle in this operation.

*Chief, Small-Arms Development Office, Chief of Ordnance Division.

Flying Animals Over the Bu

by Colonel Ralph W. Mohri, V.C.*

A truck loading point for operations that saw 2,682 horses and mules flown over the Burma "Hump." Equipment and animals await a C47 which is coming in for a landing. The animals were used in terrain that beat the army jeep.

IT is doubtful whether any theater of operations has had the occasion to utilize aircraft for transporting horses and mules to the extent this type of transportation has been used in the India-Burma Theater. Ordinarily, trucks, railroads, and steamships constitute the usual carriers for these animals in connection with military operations. Not until the present war have military aircraft been employed for this purpose, but it is questionable whether many are aware of the fact.

This article describes the air shipment in the India-Burma Theater of 2,682 animals, that required more than 600 plane flights to accomplish. The shipments were conducted with remarkable success, the more remarkable because none of the personnel assigned to the project had had previous experience with this type of operation. Before proceeding with the details of the subject, however, a brief discussion of the situation that made the air shipments necessary will be presented.

Terrain That Beat the Jeep

Pack horses and mules were used extensively in the Burma campaigns of 1943, '44 and '45 by American, British and Chinese forces. This was not occasioned through lack of motors, but science has yet to produce a motorized surface vehicle capable of traversing the jungly, swampy, and mountainous terrain peculiar to northern and central Burma, where roads are conspicuous by their absence. Even the famous jeep met its match in Burma. Therefore, combat forces were largely dependent upon pack animals for transporting supplies and equipment over the narrow jungle and mountain trails. Tactical authorities were free to admit that without them, the successes which marked the Allied campaigns in Burma would have been materially retarded or almost impossible to achieve. It is premature to disclose the exact number of horses and mules that were used, but these were considerable.

The Chinese forces operating in western and central China also relied on pack animals because of the scarcity of roads, as well as a lack of motor vehicles and fuel. One must refer to a topographical map to appreciate fully the rugged terrain that exists in this part of the world, and was included within the boundaries of the India-Burma and China Theaters.

In the latter part of 1944, Japanese forces in eastern China began a concerted drive to the west, threatening both American and Chinese installations in central China, and promising to nullify the usefulness of a number of air bases from which the USAAF had been operating. Simultaneously, Japanese resistance in Burma was swiftly crumbling before the combined efforts of American, British and Chinese troops, although complete repossession of the Burma road had not been obtained. Nevertheless, the situation in China had reached such a critical stage, that reinforcements were urgently required if the Japanese drive to the west was to be halted.

It was decided to withdraw several well trained and

*Hq. U.S.F. I.B.T.

Burma "Hump"

equipped Chinese organizations from the Burma operations to stem this advance, because the situation in Burma was considered to be so well in hand that such a withdrawal would not jeopardize our efforts there. However, the Burma road could not be utilized to effect a transfer of these troops to the China front, and marching them over the mountain trails to their destination was out of the question. The only practical solution was to fly the troops and their equipment to the scene of action.

Pack Animals Essential

Pack animals, suitable for carrying organizational loads and supplies were not available in China, and if the mobility and combat effectiveness of these troops were to be maintained, pack animals were essential. Thus a decision was made to fly the animals, which these organizations had been using in Burma, to the China front.

Up to this time, the India-Burma Theater had not employed aircraft to transport horses and mules, although our Air Force did assist in flying several hundred animals from India to Burma for use of the British Wingate expedition. The Wingate expedition was a long-range penetration project that was flown into central Burma via glider and plane in the spring of 1944; both the USAAF and the RAF participated in transporting the troops and their equipment. Unfortunately little information was available concerning the details of shipping animals, as these were handled entirely by the British. Our air crews merely flew the loaded planes. Consequently, shipping horses and mules by aircraft was something new as far as we were concerned, and there was no time to practice.

We realized that animals could not be dumped unceremoniously into the cargo compartments of the planes like so many sacks of mail. First of all, they would have to be flown hundreds of miles over the Burma "Hump" under the most hazardous flying conditions in the world. The "Hump" needs little introduction, having been widely publicized by the American press, which has vividly described its dangers. It meant that planes would have to fly at altitudes sometimes in excess of 20,000 feet to clear the peaks of the forbidding Himalayas or to get above weather that is almost a constant feature of the "Hump" the year around. It meant that planes would be subjected to frequent up and down drafts, or tossed about in the skies like a shingle in a Kansas cyclone. It meant that emergency landing fields were far apart, often too far for a plane in distress. The horses and mules would not be dead cargo, which could be lashed securely in place to prevent shifting, but chunks of living matter weighing between 700-1,100 pounds, if excited, capable of seriously damaging the planes and endangering the lives of crew members.

Lack of Oxygen a Handicap?

There were other factors, too. What would happen in the event planes were forced to high altitudes where the air was so thin that crews and passengers always donned oxygen masks? Would the animals black out peaceably or thrash wildly about on a reduced oxygen intake? We did not know the answer to that either, although the animals were not expected to die. Would it be better to narcotize them before loading or would loss of coördination work to a disadvantage in rough weather? What was the best method of restraining the animals within the aircraft? All of these and more not mentioned, were factors that had to be considered.

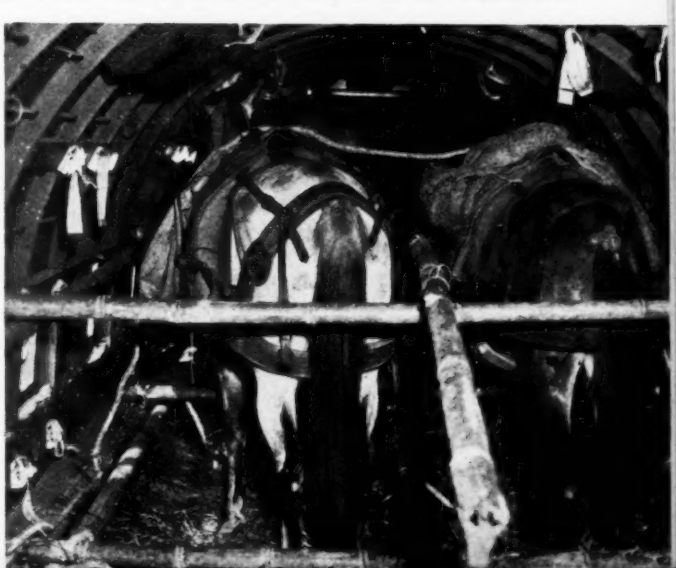
In December 1944, the first of two series of air shipments was begun. The theater veterinary service was called upon to supervise the project and make all arrangements for loading and restraining the animals within the planes. Major Lee T. Railsback, V. C., was the officer directly in charge, assisted by USF veterinary enlisted personnel from several organizations stationed in Burma.

Douglas C-47's were made available to ship horses and mules. It was found that the cargo compartments of these planes were adaptable to carrying 4 to 6 mature animals, together with an attendant for each and his personal equipment. Five days' rations for the attendants and 5 days' grain rations for the animals could also be carried. The number of animals and men loaded on each plane was governed by the weight. Pilots were willing to carry up to 6,500 pounds gross weight, which meant that 4 horses or mules weighing approximately 1,000 pounds each, or 6 weighing 600-700 pounds could be shipped in each plane.

Planes Specially Equipped

After flying the animals of the Wingate expedition, it was discovered that urine had seeped through the flooring of the planes, contacted the control cables

Plane is loaded with 4 animals. Two attendants are stationed between the first and second set of stalls. The animals did not mind the altitude, which was 14,000 feet.



which lie beneath, and corroded them. A complete overhaul of the cables was necessary to eliminate any possibility that the corrosion had affected their tensile strength. The time-consuming overhaul would have been unnecessary had the flooring been properly protected to prevent seepage. To accomplish this, waterproofed tarpaulins were laid the full length of the cargo compartments, and these covered with a heavy coconut matting on which loose hay was scattered to provide secure footing for the animals. A certain amount of damage to the aluminum floors of the planes resulted from the stamping of the shod animals, so that later heavy sheets of plywood were used to reinforce the floors before laying the tarpaulins.

Individual stalls were constructed in the cargo compartments from green bamboo, as illustrated, in the following manner:

1. The bucket seats of the plane were removed, and a pole 30 feet long was placed along each side of the cargo compartment, 17 inches above the level of the floor. The poles were securely fastened in place by wiring them to the rings normally used to fasten safety belts.

2. A 30-foot pole was placed along each side of the plane parallel to those mentioned in paragraph 1, and 20 inches above them. These were wired into the "D" rings immediately above the windows. ("D" rings are standard equipment on C-47's.)

3. Two feet in rear of the plane's radio compartment, the front of the first set of stalls was constructed by wiring cross bars of bamboo to each set of poles as described in paragraphs 1 and 2.

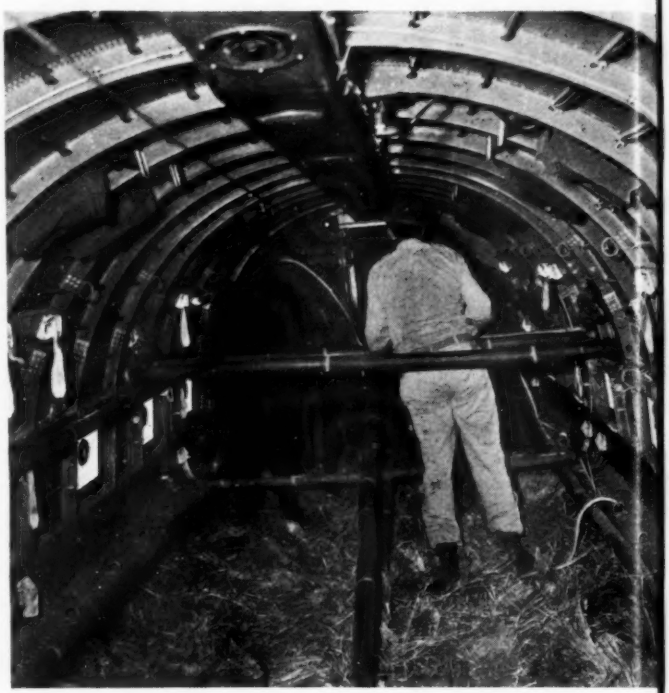
4. To form a partition between the stalls, poles 30 feet long were wired to each of the cross bars mentioned in paragraph 3. Then two animals were placed in the first set of stalls, and the stalls completed by placing cross bars closely behind them. These bars were secured in the same manner as the first set of cross bars described in paragraph 3. As soon as they were in position, the partition poles were wired on.

5. Eighteen inches in the rear of the first set of stalls, a second set was constructed in the same manner as the first. In case 6 animals were to be carried instead of 4, a third set of stalls was placed 18 inches in rear of the second set. The 18-inch spaces between stalls provided head and neck room for the animals, because the forward cross bars were placed close to their chests. It also provided a space for the attendants between the stalls, whose duty was to steady the animals by grasping their halters.

Loading Animals

The animals were loaded with stripped pack or riding saddles. Heavier animals were placed in the forward stalls to keep the center of the load as far forward as possible. They were restrained in their stalls as follows:

1. Halter shanks were passed over the top cross bar in front of the animal and tied with a short shank into a forward safety belt ring on the side of the ship.



Stalls for airborne animals in C47s were constructed, as seen in this photo, from bamboo poles. Two animals have already been loaded. Note hay on floor for secure footing.

2. One end of a 15-foot, ¾-inch manila rope was tied into a safety belt ring equidistant between the animal's head and tail, passed over the middle of the pack or riding saddles of a pair animals, and tied into a safety belt ring on the opposite side of the ship, as in photo on preceding page. These ropes were not drawn taut, but were loose enough to permit a slight movement of the animal, and tight enough to keep the animals from being thrown against the ceiling of the compartment in case of a sudden down draft. To a limited extent, they prevented the animals from being thrown into the side walls of the planes.

Rations and personal equipment was placed closely in rear of the last set of stalls. When hauling more than 4 animals, some pilots preferred to have the animal rations placed in front of the leading stalls to take the weight off the tail of the plane.

The animals were loaded into the planes from ramps and also from trucks. However, coaxing horses and mules up a steep ramp into the darkened plane compartment was too troublesome and the ramp methods were discarded early. Practically all planes were loaded by backing truck loads of animals to the doors of the planes, which permitted them to be led in on the same level.

Only a few 2½-ton 6 x 6 cargo trucks equipped with stock rack bodies were available for loading the planes. These same trucks with standard bodies worked just as

well, although the sides were much lower. In only one instance did an animal attempt to plunge over the side and have to be destroyed because of the incurable injury it sustained. These animals were hauled only a short distance from the point at which they were loaded into the trucks, to the plane.

1,582 Horses Fly "The Hump"

In the first series of air shipments, 1,582 horses and mules were flown across the "Hump" to China. This project required 14 days to complete, an average of 113 animals per day. Major Railsback, who was responsible for making the necessary arrangements, loading of the planes and construction of the stalls, was assisted by 25 veterinary enlisted men who worked in crews of three to load the trucks, and crews of two to load the planes. Eight 2½-ton, 6 x 6 cargo trucks were used in the loading operations. The crews were able to load completely 25 to 28 planes in 1½ to 2 hours.

All animals were subjected to a careful physical examination prior to loading, and those found to be diseased, unserviceably sound, or gave indications of being unmanageable for safe flying were eliminated. Horses and mules were newly shod before shipping, because they had to be used immediately upon arrival at their destination. Plane crews were instructed in the proper method of destroying a horse or mule with a service pistol in case trouble was experienced in flight. In all the shipments only one animal had to be destroyed, because he developed an uncontrollable excitability while a plane was in midair, and threatened to damage it seriously.

In February, 1945, a second series of air shipments were made, in which 1,100 horses and mules were flown from Burma to China. In some of the later shipments, the stalls were constructed of plywood instead of bamboo poles. While these took longer to build, they afforded more protection to the sides of the planes.

Records indicate that only one plane out of all the shipments had to make an emergency landing when one of the animals broke loose from a stall, but no serious damage was done.

Conclusions

The following observations were made by the plane crews who flew the animals across the "Hump."

1. The horses and mules were very quiet after being airborne.

2. Between the altitudes of 14,000 to 20,000 feet, the animals appear sleepy, but do not become excitable as the higher altitudes are reached.

3. When up and down drafts were encountered over the "Hump," which raised or lowered the planes as much as 2,000 feet per minute, the animals rode better than expected.

4. When planes lose altitude, animals push forward in their stalls.

5. Only minor damage to the planes were reported from the entire operations.

The ground crews who loaded the planes, made the following comments:

1. The truck method of loading is much faster than any other, but skilled drivers should be used to prevent damaging the planes when backing up to the doorways.

2. It is very important not to underestimate the weights of animals to be loaded. An error in judgment may mean the loss of lives and equipment.

3. After a little experience, a crew can load a plane in 10-20 minutes.

4. Planes should take off as soon as the loading has been completed, and animals unloaded as soon as the planes have landed. Most planes arrived at their destination 2½ hours after taking off and were unloaded immediately. If animals are left standing in the planes for any appreciable length of time, they have a tendency to become nervous and may cause serious damage through stomping and kicking.

5. Animals can be successfully loaded at night.

The writer is in no position to venture an opinion as to the commercial possibilities of shipping animals by aircraft in the postwar period. It is difficult to conceive that aircraft will ever supplant the railroad as the most common method of moving livestock to market. However, experiences in the India-Burma Theater are believed to have proved satisfactorily that horses and mules can be shipped by plane, even at high altitudes and through inclement weather conditions, without difficulty. In addition, cargo planes may be easily fitted to carry animals without installing highly specialized equipment.

Loading by ramp without sides is not the approved way. Time is lost and damage may occur to near-by wing. Loading from a truck backed close to door is much preferred.

THE BURMA BOAT

General Frank Merrill, who commanded the famous Merrill's Marauders, stated: "I have made many boats from Phillips cargo saddles. This was our standard method of crossing rivers in Burma."

Highly useful in the combat zone of Burma for crossing rivers were boats like the one shown above, which were made from Phillips cargo packsaddles, rigging cover and ropes. The photograph was made at the Cavalry School, Ft. Riley.

A SERVICEABLE boat, which with practice should not take over 15 minutes to construct, can be made from Phillips saddles. Such a boat will support up to 2,500 pounds.

Instructions for making the boat will be found in the new FM 25-7, Pack Transportation, and are as follows:

1. Unload all saddles and cargo as near the water's edge as possible. All animals, at this time, should be swum across the stream.

2. Spread a rigging cover on the ground near the water. Place 5 packsaddles end to end with their footrests on the edge of the cover, and centered so that there will be an equal length of cover at either end. The saddles are lashed firmly together by a lair rope which is looped through the arches, and then are rolled over as one unit to the center of the canvas.

3. The footrests now are tied together with a lair rope, looping together all adjacent footrests.

4. The rigging cover is lifted until it fits snugly around the outside of the saddle, and the ends are folded and placed across the end saddles.

5. The cover is bunched at each footrest and secured in place with a loop in the lair rope. This completes half of the boat; the other half is constructed in the same manner.

6. Both halves are placed side by side in the water and fastened together by looping a rope around their adjacent footrests.

7. A lifting bar, or a strong pole, is placed under the folded canvas on the saddles at each end of the boat. The center bar is lashed securely to the center footrests with one end of a lair rope; the rope now is run to one end of the bar where it is used to secure the bar to the footrest; the rope then is passed under the boat to the opposite end of the bar, which again is secured to the footrest.

8. The excess canvas at each end of the boat now is folded back over the saddle pads to provide protection. This completes the boat.

It will support up to 2,500 pounds. With a load of 2,000 pounds, the freeboard will be 6 inches; with a load of 1,500 pounds it will be 12 inches.

British Official Photo

British tanks and infantry of the 19th Division move through the outskirts of Mandalay for the main attack. In the campaign that cleared central Burma of the Japanese, troops from Britain, India, West and East Africa, China and America were coördinated in warfare which was fought under the utmost difficulty. Mandalay fell in just 12 days.

VICTORY IN BURMA

The Full Story

*by Major Lewis Hastings**

Over razor-edged ridges, 10,000 feet high, through dense tropical forests and pest-ridden jungle, across great rivers, by land and by air, moved the men of Britain's Fourteenth Army to play their part in the first great conquest over the Japanese.

THE importance of the victorious campaign in Burma was to some extent obscured by the huge scale of events in Europe. Yet Burma was itself an operation of great magnitude, with features of outstanding interest to all students of war. As for its results, the utter defeat of the Japanese armies in this part of southeastern Asia, the almost total recovery of Burma, and the conquest of Rangoon, have strategic consequences of weighty significance for the Japanese war as a whole.

The terrain over which the decisive battles were fought affords an astonishing contrast to that in the western theater. The main frontal zone of operations extended from the coast of Arakan in the Bay of Bengal to Northern Assam, a distance of 700 miles. Save only in the narrow coastal belt, the whole country was wretchedly supplied with communications on the British side. Any advance had to be made across country over razor-edged ridges 10,000 feet high, through dense tropical forests and pest-ridden jungle, and over great rivers. In the words of the supreme commander, Lord Louis Mountbatten, the campaign was a logistical nightmare. Moreover, malaria and other tropical diseases were as dangerous as the Jap himself, though it should be borne in mind that British prophylactic measures almost completely negatived the disastrous results ensuing from tropical diseases. Between May and October, the monsoon period, the rainfall is one of the heaviest in the world. This climatic peculiarity as well as the topography naturally influenced the planning and conduct of the campaign.

The ground forces engaged on either side during the final stages of the offensive were approximately equal. The strategical weakness of the Allied position for an offensive in these conditions was balanced by an over-

*Well-known British radio commentator.

whelming superiority in the air. It was Britain's use of air power on a hitherto unprecedented scale for transport and supply as well as for offensive action that gave this campaign its unique character.

A striking feature on the Allied side was the composition of the forces engaged. It was truly an Allied team. The over-all command was British; and British, Indian, West African, East African and Chinese troops were employed. The American General Stilwell commanded a force of Chinese and Americans on the northern flank; Americans flew alongside their British comrades in the air. A high proportion of the infantry belonged to the magnificent fighting races of India: there were battalions of Gurkhas from Nepal, historic friends and allies of the British, there were African troops, and some formations of Burmese. Perfect integration of this brotherhood of arms was gained under Mountbatten's supreme command.

There is no doubt that the week ending December 7, 1941, will be forever remembered in history. That was the week which saw the Hitlerite hordes routed in front of Moscow, and that was the week also which saw, far away in the Pacific, the Japanese attack on the American fleet at Pearl Harbor.

Whatever furies of retribution the Japanese allies of Hitler evoked by this treacherous onslaught, there is no doubt that the immediate consequences were disastrous to the Allies. Both the Americans and the British were caught lamentably unprepared. The American fleet was crippled for months. The only two British battleships in the Far East were sunk by air attack, the Philippines and the rich Dutch archipelago were overrun, Singapore fell, and through Malaya and Indo-China the Japanese converged on Burma. Before the victoriously advancing Japanese columns there were scarcely more than a couple of brigades of British troops, together with a small Chinese force under Stilwell in the solitudes of Northern Assam.

To provision troops in forward areas, a great highway was hacked from the Chin hills, Imphal-Tiddim area, and along which the picture shown was taken. Supply-lorries are crossing a pontoon bridge in forward fighting area.

British Official Photo

Then came the fall of Rangoon, the great port of the Indian Ocean. That was a heavy blow, for with Rangoon the lifeline to China was lost, the famous Burma Road, only land route for supply to the hard-pressed armies of Chiang Kai-shek. But under the leadership of General Sir Harold Alexander, the great commander who was later to win resounding victories in the Mediterranean, the small Allied forces made a masterly retreat through forest and jungle, inflicting heavy losses on the enemy. The Japanese halted at the mountain barrier across the Chindwin, and the breaking of the monsoon put a temporary end to operations.

In the campaigning season that followed during the late autumn of 1942 and the spring of 1943, operations were on a relatively small scale. The pressure on British resources was growing everywhere on sea and land and in the air—the campaign in the Mediterranean and the preparations for the assault on Europe were making heavy demands on manpower and materials. Yet it was the Allied command that took the offensive in Burma in 1945, and Britain was slowly regaining the initiative. Between December and March, 1943, the British attacked in Arakan. The campaign was, on the whole, inconclusive, but Japanese plans for invading India along the coastal belt were stultified, and many enemy troops were contained and destroyed.

During the same period, another operation of an entirely different character occurred in the central part of the front. A small force of British, Gurkha, Indian and Burmese troops, trained and commanded by the late Major General Wingate, penetrated across the Chindwin river deep into enemy territory. In the course of a few months, this force traversed over 300 miles of jungle in the Japanese rear, blew up bridges and railways and killed many Japanese. In terms of damage done the total accomplishment had perhaps no more than a nuisance value, but as a pattern for the future and as a vindication of Wingate's special technique, this brilliant exploit far more than justified itself. It proved among other things that British and Indian soldiers, given the necessary training and equipment, could easily outclass the Japanese in jungle warfare. But above all it showed that it was possible to keep a force supplied and on the move, even when completely cut off from its base, by the use of air transport alone.

By the summer of 1943, it had at last become possible to contemplate a serious attempt to crush the enemy in Burma. The basic plan of the operation was drawn up at the Quebec Conference in August. It was then decided not only to develop the existing air route from

India to China but to break the blockade of China effectively by reëstablishing road connections with Rangoon. The supreme command of all the forces engaged by sea, land and air was entrusted to Admiral Lord Louis Mountbatten. The military problem involved was one which clearly called for amphibious operation, in which Mountbatten was expert. But the means were lacking. The necessary technical equipment, assault boats and landing craft had to be concentrated for the grand assault on Europe, first in the Mediterranean and later in the English Channel. In consequence, the weight of the attack in Burma had to be borne by land forces together with the air arm.

On the Allied left flank General Stilwell's Chinese and Americans were to make their way from the Ledo railhead over the mountains to Burma proper. With them went a force of American and British engineers whose task was to drive an all-weather road through the rugged country between Ledo and Myitkyina and so eventually link up with the existing Burma Road into China. On the right or southern part of the line, the XV Corps were to resume a forward march down Arakan, with the object of bringing a concentration of Japanese troops in this area, and to occupy the high ground. More distant objectives were the port of Akyab and, ultimately, the Irrawaddy.

The main forces of the British Fourteenth Army were disposed in the center, west of the Chindwin, covering the widely separated key points of Tiddim, Imphal and Kohima. It will be seen that the land communication of all these forces had a dangerous dependence on the single line of railway from Calcutta through Dimapur to Ledo. In general the supply lines by road and rail also had the strategic disadvantage of being roughly parallel to the front, and in the neighborhood of Kohima, not out of reach of a determined enemy thrust. As events proved, it was clear that the Japanese were fully aware of this position.

At the turn of the year the offensive began with movements on both flanks. Stilwell's troops on the left began to make their way over the mountains. By the end of March they had entered the Mogaung valley on the road to Myitkyina. Down in the south, Indian divisions forced their way from the coastal flank to the eastern side of the Mayu range, the barrier between the maritime plain and the great valley of the Irrawaddy. A strong counteroffensive by the Japanese succeeded in cutting off part of the two divisions on the eastern side, but the isolated group, again entirely supplied from the air, held out stubbornly. Reinforcements attacked, and the Japanese enveloping force was itself surrounded and was almost completely destroyed. By May, the important high ground was in British hands, but with the coming of the monsoon in this most unhealthy tract of country, the southern front became temporarily stabilized.

While this operation was in progress, a more dramatic enterprise was undertaken to hustle the Japanese. Wingate's long-range experiment of the previous year was repeated on a much more ambitious scale. A whole

British division was transported almost entirely by air to the rear of the Japanese Chindwin front, astride their main communications between Myitkyina and Mandalay. By parachute and glider, something like 12,000 men were landed, complete with mules, equipment and even steam rollers, on a site chosen by Wingate in his previous expedition. The landing was a rough experience and a good many gliders were smashed. But the Japanese were taken utterly by surprise, and Wingate's force immediately began a work of competent destruction in the general direction of Myitkyina.

The brilliant General Wingate himself was unfortunately killed in an air accident, but his airborne force continued to operate with increasing success against desperate but uncoördinated resistance. During March and April all the various units engaged in this complicated northern operation pressed harder and harder on the enemy. By the middle of May, Chinese and United States troops captured the important airfield near Myitkyina after an exhausting 20-day march through the jungle. The British airborne troops fought their way to Indaw and Bhamo, and Myitkyina itself was invested in June.

These events in the north and south of the line were soon eclipsed in importance by what happened in the center—on the main Assam front. Hereabouts the British Fourteenth Army, consisting of British and Indian Divisions, had planned to strike forward in the Tiddim area and to divert Japanese attention from General Stilwell's advance on the Myitkyina road.

But early in the spring Lt. General Sir William Slim, the army commander, learned that the Japanese them-

selves were preparing a large-scale offensive against Assam and India. He took an immediate decision to withdrawn his advanced Corps toward Imphal, in order to shorten his communications, and prepared to fight the battle in that area. This decision was justified, as the Japanese counterattack was even more powerful and determined than was at first expected.

On March 16, several divisions of General Mutaguchi's army crossed the Chindwin river and swept forward on a broad front. These enemy troops carried exceptionally light equipment, and their prospects of supply, if the operations were protracted, were meager. Their intention was to capture Imphal and Kohima by a surprise stroke, and provision themselves on British supply dumps. Then they planned to cut the communications to Stilwell's forces, to capture the airfields and bases from which supplies were being flown to China, and to invade India. The plan was risky, but it was a bold and determined one, and the objectives were of the highest strategic importance.

In its early stages the Japanese assault was successful. Kohima was enveloped and the garrison cut off from all land communications. The roads were cut between Kohima and Imphal and between Imphal and Tiddim. The bitterest fighting of the campaign then took place, much of it at close quarters. Once again, however, when the Jap radio was shouting victory in every transmission, air transport proved the key to the situation. Two complete divisions were flown up all the way from Arakan, and aid was brought to the garrisons at Imphal and Kohima. Japanese aircraft were wiped out of the skies, and Allied air squadrons battered the enemy formations and supply lines right back to Rangoon.

General Mataguchi ordered a last Japanese assault on Imphal. In his order of the day he told his troops: "The fate of the Empire depends on this battle. Imphal will be taken at all costs." The Japanese attacked again and again with even more than their customary fanaticism, but their assaults withered against a superb defense. The Kohima hills were stormed, Kohima was relieved, and soon the whole Allied force in Assam passed to the offensive.

By this time the monsoon had begun, but General Slim realized the plight of the Japanese Army, short of supplies and entangled in the mountains. He ordered that the advance was to proceed through all conditions. So the pursuit began, through the monstrous growth of the jungle and over torrents raging with the heavy rains. Daring penetrations were made into the Jap rear, and on the ground and in the air, the Japanese were cornered and harried and remorselessly destroyed right down to the Chindwin valley.

In the north, the same unrelenting pressure was maintained by the converging columns of Stilwell's Chinese and the British Airborne Division. Mogaung was captured, and, in the autumn, Myikyina, the enemy key point, which was situated in northern Burma, fell before an attack by the northern command.

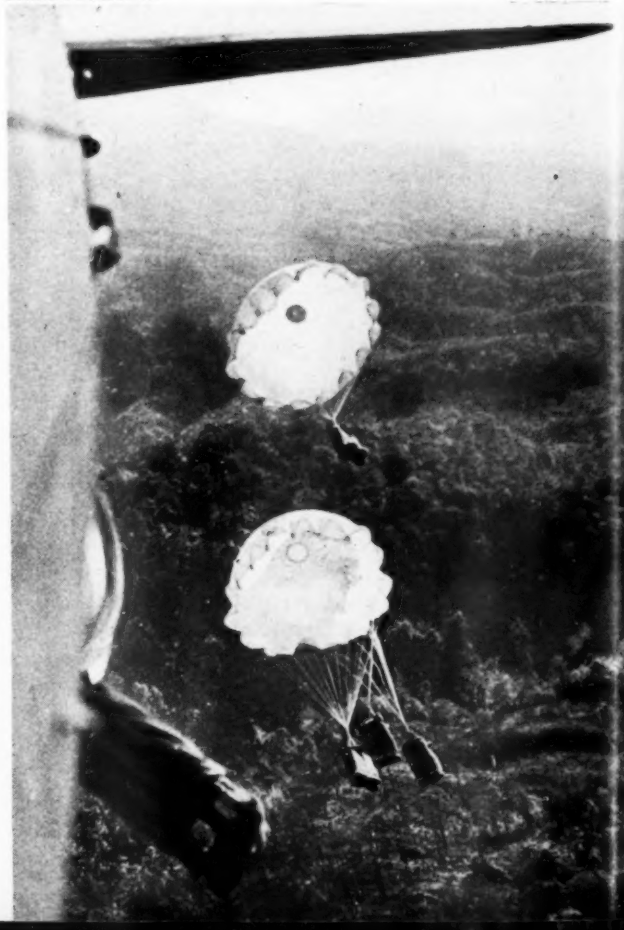
The Fourteenth Army, having smashed the Japanese offensive and finally eliminated the threat to India, now struck eastward across the mountains toward the Burma plain. In January, the elements of a great converging movement on Mandalay became discernible—the Fourteenth Army, consisting of the IV and XXXIII Corps, down the Chindwin, and the northern force southward along the Irrawaddy.

Kalewa, the last Japanese stronghold on the left bank of the Chindwin, was captured by the East African Division. Two days later they crossed the river in the darkness and established a bridgehead. By the middle of February, the XXXIII Corps was over the Chindwin and contact was made with the northern force. Ahead of the Fourteenth Army now was the Irrawaddy, the chosen Japanese barrier line of defense and one of Asia's great rivers, more than 4 times the width of the Rhine. The first bridgehead was made 60 miles north of Mandalay. A few days later, another crossing was forced about 40 miles west of the town.

For 6 days and nights, the Japanese renewed their attempts to drive the British troops back, with nothing to show for it but murderous losses. Still another crossing was made, and soon the whole XXXIII Corps were

Air supply was highly important to Wingate's raiding column which had penetrated 170 miles behind Jap lines. Supplies are shown being dropped to clearing in jungle.

British Official Photo



firmly on the east bank of the river. Early in March, the assault began. By February 8, the Allies were in the outskirts, but the Japanese still held out desperately in Fort Dufferin, the great walled and moated square in the heart of the city. But on February 20, the end came. Mandalay, the capital of Burma, the great Japanese base in the campaign, was once again British.

In the meantime, General Sir William Slim, looking still farther ahead, had prepared a formidable surprise for the Japanese. Between Mandalay and Rangoon, the essential port of the Indian Ocean, ran the main channel of enemy communication. There was the railway, and a vital stretch of the famous Burma Road, main supply route for China. That was now the objective. The IV Corps of the Fourteenth Army, which in February had been concentrated away to the northwest, was secretly marched down to Pakokku on a bend of the Irrawaddy far south of Mandalay. Once again, a passage was forced and an armored column was immediately rushed to seize Meiktila on the railway, 90 miles away. An airborne column was flown in to their support, Meiktila was held, and all Japanese communications were ruptured between Mandalay and Rangoon. The Japanese retreating from Mandalay, and those still engaged with the northern force, were cut off from the south.

All through March, the decisive battle for central Burma went on inside this trap. The enemy fought furiously to recapture the airstrips seized by the IV Corps and to break through the iron ring at Meiktila. Their struggles were in vain, and the work of extermination went on steadily. Now the time had arrived to strike the blow for Rangoon. The main thrust was allotted to the IV Corps. This Corps had been reorganized for the purpose on the novel basis of one airborne and two motorized brigades to the division. Supplies were by air alone, and, from all points of view, this striking force must have been one of the swiftest and most flexible formations in military history.

There was reason for speed; the monsoon was again due in May. While the weather remained dry, the terrain in the Irrawaddy valley was suitable for mechanized transport; but, once the heavy rains set in, the armored columns would soon be bogged down and the supply situation would change to the advantage of the Japanese. Nothing therefore was left to chance. The XXXIII Corps was switched from its position south of Mandalay across to the right flank of the southward advance to deal with the Japanese forces in the direction of Prome. At the same time, another shock was prepared in the Arakan. Under the direct command of Lord Louis Mountbatten, a combined sea, land and air attack was planned to take the Japanese in the rear at the sea approaches to Rangoon. The whole of the forces thus deployed for the final action were exclusively dependent for all their manifold requirements upon air transport. For the first time in war, a whole army was to be provisioned and munitioned by this means alone.

Indian Official Photo

With chutes open and hanging in trees, an airborne supply "dump" is being assembled in the Burma jungle for troops which out-paced any other means of replenishing needs.

The total weight of supplies discharged from the air during the ensuing weeks reached the unprecedented figure of 2,000 tons a day.

The renewed offensive was started by the IV Corps along the direct southern route. It swept forward at lightning pace. Divisions and brigades leap-frogged over one another and the forward thrusts were greatly accelerated by the use of airborne units. In three weeks, the corps covered 300 miles, scattering the Japs before them, and, by the beginning of May, they had closed in on the northern side of the great port. Then, exactly synchronized, the combined operation was launched from the south on both sides of the Irrawaddy estuary. The timing was perfect, and the jaws closed on the Japanese. Rangoon, the great strategic prize of the whole campaign, was captured on May 3. The monsoon as well as the enemy had been beaten on the post.

There was still some mopping up to do in the less accessible parts of southern Burma, but victory was in effect complete and all the main objectives had been gained. The Japanese had sustained the greatest land defeat in their history. Since the campaign opened in March, over 100,000 Japanese dead had been actually counted by the Allies, and multitudes of others had met their end unseen in the dense jungles of the vast battlefield. Practically the whole of the guns, vehicles, tanks and equipment destined for the ambitious invasion of India had been captured.

SOVIET CAVALRY*

by Captain Sergei N. Kournakoff

OUTSTANDING characteristics of the Soviet conduct of the war are flexibility and freedom from dogma. The dogmas of innovation that would have sent certain military arms to the scrap heap as obsolescent were no more gently treated than the dogmas of tradition that would have hampered full mechanization.

As described earlier the Soviet answer to the question "horse *or* motor" was "horse *and* motor." But the Soviet decision on this military issue was not as some commentators concluded, a concession to the "Cossack cavalry tradition."

It was a decision based on studies which indicated continuing uses and new potentialities for cavalry in modern war. This cavalry was, of course, not like the old *but was rearmed* with modern weapons and *integrated into the pattern of operations of mechanized war.*

The present organizational structure of the Soviet cavalry division is probably not radically different from that outlined in the latest Soviet cavalry manual available here, that of 1933. The 1933 division consisted of 4 horse regiments, 20 squadrons, and 4 batteries of small guns; one artillery regiment made up of 6 batteries of field guns; a mechanized unit made up of three squadrons and operating small tank and tractor-drawn equipment; a signal unit made up of two squadrons; and a squadron of engineers. The division was further equipped with 48 *tachankas* or horse-drawn, heavy machine guns, and other auxiliary units. The total complement was 3,701 men, 3,533 horses, and 42 tanks and armored cars.

Allowing for a large part of the total mounted strength being held for eventualities in the Far East we may assume that about 30 divisions, or up to 100,000 mounted troopers, have been operating against the Germans. As has already been made clear the cavalry's arms are not confined to the traditional saber and carbine. They include light tanks, armored cars, and artillery; and a liberal supply of automatic weapons. Every 8 men of a cavalry squadron have either a light machine gun or a grenade thrower. The cavalry are trained, of course, to dismount and operate as infantry.

Germans themselves testified to Russian cavalry superiority in the First World War. For example the German World War cavalry officer von Poseck, in his book, *The German Cavalry in Lithuania and Kurland in 1915*, wrote:

"In about three-quarters of an hour Cossacks appeared, reconnoitering carefully, taking advantage of every fold of the ground. I must admit that I clearly saw how much our cavalry could learn from these sons of the steppes. Three squadrons of them had already accumulated when I opened fire. In less than three minutes they had vanished behind some kind of cover which I could not even see."

The Soviet cavalry superiority however is not due to any race factor. It is due to environmental condition of which the Soviet High Command has made shrewd use. Germany lacks the wide plains needed to evolve a nation of horsemen. Good as German horse-show teams have been they have been men of exceptional training, whereas the Cossacks, the Kalmyks, the Kirghiz, and other nationalities are full-time horsemen, herdsmen, born to the saddle and with centuries of experience and horse lore behind them. Much of the Civil War experience on which the Red Army founded and tested itself was a series of cavalry engagements. It further developed Soviet cavalry experience.

All this Soviet cavalry was put brilliantly to the service of their country in the present war. It is clear that where the motor cannot forage for itself the horse can, on grass; that while the motor announces itself with blast and rumble the horseman can make as silent an approach as required; that as long as there is terrain which at all times, or under certain conditions, a horse can traverse, but a motorized vehicle cannot, the cavalry maintains its value.

Especially in the winter campaigns the cavalry has maintained its traditional rôle of a maneuvering shock force, in which, it has been assumed, the moto-mechanized force had superseded it. For this function it is very well equipped with modern arms, including even antitank and antiaircraft artillery. Launched against foot soldiers, these modern centaurs, galloping, shouting, slashing and with terrifying advantages of height, mass, and speed, have again and again scattered infantry formations.

In the First World War a Siberian Cossack Brigade, in December, 1914, operating on the Turkish front, made a 70-mile march through snow in 30 hours, capping off this exhausting march with such a difficult accomplishment as the storming of the fortified city of Ardahan. On the same front, operating before Erzerum in the winter of 1915-16, through mountain snow over three-feet deep, and in temperatures of 40 below, the Russian cavalry won brilliant successes. In 1919 Budyonny deliberately led his cavalry, in a blizzard, against two White cavalry corps, surprised them

*From *Russia's Fighting Forces* by Captain Sergei N. Kournakoff, International Pub.

and routed them. In March, 1921, the Eighteenth Red Cavalry Division driving through the Caucasus, forced the Godher Pass, hitherto considered impassable except in full summer, by a stratagem of great ingenuity. The *burkhas* (felt capes) of the entire division were laid out on the trail like a carpet. The horses were led over them. And the passage of the horses so solidly packed down the snow that it was possible to move artillery over it.

In the Timoshenko offensive north of the Sea of Azov we heard of Soviet cavalry divisions leading the advance with tanks and attack planes.

Two examples, albeit of a negative character, will show how cavalry and tanks can supplement each other and neutralize each other's shortcomings. On November 18, 1931, meeting the attack of the Second Japanese Infantry Division on Tsitsihar, in Manchuria, the 54th Chinese Cavalry Regiment covertly turned the Japanese flank and reached the enemy's rear. But this action of the Chinese cavalry took place at a slow tempo, because of the uninterrupted though weak fire-resistance of the Japanese rear establishments. The suddenness of cavalry action was neutralized and the Japanese command had sufficient time to take countermeasures and use its last reserve—aviation, which saved the situation for them. Supporting tank action would have given the Chinese the victory.

On October 29, 1936, the tanks of the Spanish Republican Army crossed the Rebel trenches, attacked the enemy reserves at Seseni and, having penetrated the enemy lines to a depth of 6 to 7 miles, scattered one and a half battalions of Rebel infantry. But the crews of the tanks were not able to take a single prisoner. They could have secured what they had won had they had cavalry support.

The large Soviet cavalry formations, utilizing both horse and motor, are proving a decisive factor in the successful development and conclusion of an operation. Their best use is deployment on the flanks or in rapid operations where the enemy front has been breached, as was done by Timoshenko's cavalry in the Rostov offensive. Cavalry can also be used to screen one's own concentrations and regroupings, and as a mobile reserve for closing up a break-through of one's own front.

To be successful the cavalry must be invisible, fast, highly active, and determined. The numerical and qualitative growth of military aviation forces cavalry to move mostly at night, especially in winter when leafless trees do not conceal, and snow exposes everything moving on it. In daytime cavalry marches off the roads in broken formation, squadron by squadron, or even troop by troop. Nevertheless it must also preserve its unity or face destruction piecemeal by enemy attack, and it must be constantly on the alert against enemy mobile formations, and aviation. For that reason the major part of its mechanized weapons must be kept with the main body. It is clear that the tank forces and squadrons of armored cars which form a part of a Soviet cavalry formation must be especially trained.

A meeting-engagement of a cavalry division may assume many forms. For example, where the division meets a mobile enemy – cavalry, moto-mechanized troops, or even a mixed detachment—the commander must avoid complicated plans and wide maneuvers, but must try, through the energetic action of his covering troops (in this case his vanguard), to freeze the enemy maneuver and to assure advantageous conditions for the entry of his main body of troops into battle. Having picked the direction of the main blow, he will send the tanks and the mounted regiments of his main striking force there, supported, of course, by a great part of his artillery. The main thing at this juncture is to act quickly in deploying and seizing the initiative: Therefore, a tank maneuver, when the battle wagons are first rushed to support the vanguard and then called back to act with the main striking force, would be disadvantageous. The same would be the case if the tanks were sent out on their own to attack the flanks of the enemy on the march.

In meeting enemy infantry the commander will try to prevent the deployment of the enemy by attacking him on the march, if possible from several directions simultaneously. In an attack against an enemy put on the defensive, such as Timoshenko's cavalry attack against von Kleist, the cavalry commander first of all tries to find an open enemy flank. If successful he dispatches all available tanks, two or three mounted regiments, and most of his artillery to turn the enemy's open flank, *i.e.*, for a blow at the enemy flank and rear. In such a case a small force of mounted troops with some artillery is left in front of the enemy as a holding force, or a "pivot of maneuver." If the enemy's flanks are not open or accessible and a break-through is attempted, the tanks have to open the way for the cavalry. Depending on circumstances, the tanks will be either under the direct orders of the commander of the cavalry division, although in close coöperation with the regiments of the first attacking echelon, or will be subordinated to the regimental commander who will allot them their objectives. But the divisional commander will not fail to give all his tanks the time and place of assembly in order to have them all at hand.

Larger cavalry formations, cavalry corps, and even cavalry armies, may, and most probably will, have special tank units distributed, not among the cavalry divisions of the formation, but at the direct command of the senior cavalry general officer. Such special tank formations usually act in the vanguard of the cavalry divisions, delivering the main blow, along the main operative direction.

Such were the broad tactical outlines which governed the combined action of Soviet cavalry and tanks against the right wing of Field Marshal von Rundstedt's armies near the Sea of Azov, where Timoshenko apparently sent a whole cavalry army, 6 or more divisions, against the Germans.

Mongolian Cavalry*

by Major V. Petrov

Once again in this war, horse cavalry has proven its worth. This time the Mongolian Cavalry attacked Japanese communications in Inner Manchuria over terrain impassable for vehicles, and intercepted the retreat of the Japanese forces.

THE operations of Marshal Choibalsan's Mongolian Army in the Far East deserve special attention as some of the most extensive operative maneuvers carried out by large cavalry and mechanized units during the war. These operations are all the more interesting since they show the superior quality of the Mongolian Army, which includes cavalry units.

While one body of Soviet troops struck from the direction of Great Khingan, stormed the enemy's mountain strongholds and then descended to the central Manchurian valley, another body consisting of Mongolian cavalry and mechanized units dealt a sudden blow from the south in the general direction of Kalgan with the aim of emerging on Lyaodun Bay. The purpose of this blow is clear. Japanese communications linking Manchuria with the northern province of China were being severed.

The enemy had not anticipated a serious blow from the direction of the barren Chahar steppes. The Mongolian cavalry, however, struck precisely from here, from the north, after having surmounted the endless sands, salt marshes and roadless terrain of Inner Mongolia. This maneuver over the steppes and the blows which then descended upon the enemy's strongholds, mainly on the Dolon Nor, upset the plans of the Japanese command, preventing them from establishing stable defenses. Their attempts to check the advance of the cavalry by counterattacks north of Kalgan availed them nothing.

In this phase of the operations the Mongolian cavalry displayed great skill of maneuver under difficult meteorological conditions, and on terrain decidedly unfavorable for the movement of large bodies of troops. The wastelands traveled by the Mongolian cavalry are nearly devoid of inhabited places. Orientation, too, is extremely difficult here. Since the maneuver encompassed large territories, units advanced in separate directions. Great skill, orientation and the guidance of troops as a whole were required to maintain correct directions and emerge accurately at respective destinations. This skill was fully displayed by the Mongolian troops.

One must emphasize that the cavalry of Marshal Choibalsan showed remarkable ability to adjust themselves to the widely varied battle conditions. Unfolding operations, they entered the hilly terrain where much depended on the flexible tactics of small units, the struggle for various roads, maneuvers for by-passing the enemy's strongholds, etc. The cavalry squadrons of the Mongolian Army, *together with light tanks and armored cars,* coped very well with their tasks on new terrain. They intercepted the enemy's retreat, and moving swiftly through the hinterland, seized important junctions and command posts. Such were the developments at the approaches to the large town of Jhehe. Having stormed this city, Marshal Choibalsan's units pressed on toward Lyaodun Bay without checking their stride.

The Mongolians are natural riders and are in their element in the vast steppes. This adaptability unquestionably facilitated the success of the large-scale cavalry maneuvers. The fondness for horses has passed from generation to generation of Mongolians. Accustomed to the saddle from early childhood, they are invariably excellent cavalrymen, and their endurance on the march is beyond compare.

The necessary qualities for the prolonged and forced marches are acquired by the Mongolian youths before they join the Army. The following is characteristic: a *tsirik* (a soldier of the Mongolian Army) was ordered to deliver a parcel from Kobdo to Ulan Bator quickly, and he made the trip both ways in nine days. In that period he traveled 2,600 kilometers. A ride of 600 to 700 kilometers in a single week is nothing extraordinary for the Mongolian cavalryman. Changing horses en route, he is nearly always mounted on a relatively fresh animal. As a rule each *tsirik* possesses two horses; he rides on one and the other follows. He is thus able to change horses at will.

**Information Bulletin, Embassy of USSR.*

A Remount Depot in Italy

*by Lieutenant Colonel Kenneth F. Lafayette**

DURING the four and a half months from October 1, 1944, to February 15, 1945, the 6742d QM Remount Depot (Ovhd) was charged with the function of supplying the Fifth Army in Italy with horse and mule units capable of performing the heavy task of packing supplies quickly and regularly.

As it began its assignment, half of the original strength of the unit was sent to France and redesignated, leaving this unit with an approximate strength of 50 enlisted men and 10 officers.

It was the functional mission of this unit to furnish original T/O strength of horses and mules to the 15 pack troops and miscellaneous mounted units with the Fifth Army, in addition to maintaining a replacement stock of 10 per cent a month and a 30 per cent reserve. Circumstances, however, greatly changed that.

Difficulties were many. All functions were performed in adverse weather, and in the face of irregular movement schedules for animals. The operation also was conducted without the normal guidance of a War Department T/O and E, or the benefit of experiences of predecessors. It was necessary for the unit to develop its own organization, system and solutions for the problems encountered.

On one occasion it processed 1,300 mules and 45 horses for 5 new pack troops in less than a month, and then successfully held the animals for an unanticipated extra 45 days because of a delay in the activation of units of the Fifth Army.

During the four and a half months, the unit procured, processed and maintained a daily average of 1,304 animals, with an average of more than 1,600 animals during the last month and a half of the period.

For the assignment, the depot operated two remount stations, at which were employed both Italian military and civilian personnel.

An idea of what a unit under similar circumstances is up against may be obtained from the following list of tasks that were performed and services that were furnished by the 6742d QM Remount Depot (Ovhd):

One of the functional operations included remount and veterinary care of animals—such as branding, feeding, watering, shoeing, conditioning, malleining, worming and hospitalization of sick and wounded.

The depot performed post maintenance of utilities, providing water supply lines, fences, feeding troughs and racks, sheds, stables, and roads.

It loaded and unloaded animals awaiting shipment, and those to be shipped between the rear and forward stations by truck and rail; unloaded animals from ships from the Unied States and France, and then shipped these animals from the port areas to the nearest remount station.

The unit provided a system of chutes, pens, and ramps to facilitate loading and unloading of animals transported by truck, and made the necessary segregation of the stock. It furnished an escort for animals shipped between the stations.

It accepted and cared for animals from Fifth Army veterinary hospitals and evacuated them to a general veterinary hospital. Duties also included keeping horse and mule service records, and records of all animals received and issued; and also the performance of the normal administrative details which are inherent to a headquarters of battalion level, with organizations of the company echelon.

In addition, personnel of the 6742d QM Depot furnished escorts for animals from France when horses were procured for the 10th Mountain Division, and for all animals procured from the British.

Another big function was to furnish both officers and enlisted men to the Fifth Army to organize, work, and supervise remount activities, and to assist the quartermaster in the procurement of hay when it was hard to find.

New personnel was trained in remount functions for the 2610th QM Remount Depot (Ovhd), and regular instruction classes held while the organic operations of the unit were continued. This latter performance was an example of many of the non-routine duties performed.

Following is a statistical breakdown of daily average animal strength, Morning Report strength of the unit, and Italian military and civilian strengths for the period:

Month	*Animal Strength*	*M/R Strength*	*US-ITI*	*Italian Civilian*
October	763	56	191	24
November ..	933	60	231	42
December ..	1,494	59	258	51
January	1,605	60	254	52
February 1 to 15 ...	1,726	57	254	78

Because the highest traditions of the service were reflected in the performance of such duties, the 6742d QM Remount Depot was awarded the Meritorious Service Unit Plaque.

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*Hqs. Peninsular Base Section, Office of the QM, APO 782, NY.

SERGEANT MIYOSHI!*

Any similarity between the character depicted in this story and a living Japanese soldier *is purely intentional.* Sergeant Miyoshi Toshio was a little guy whose big aim in life was to kill you. He spent the better part of the past 10 years learning how. He is a facsimile of the Japanese GI. He is no superman, but he is no dumb ape either. It will be worth your while to know him, how he thinks and acts, and what he was taught to do in battle. Our struggle with Japan is not finished until all former Japanese soldiers have been re-educated to the American way of life just as thoroughly as they were once indoctrinated by their leaders who thirsted for world conquest.

Early Training

MIYOSHI TOSHIO could hardly remember a time when he was not preparing to be a soldier. At the age of 6 he was sent to school to start the education that practically every Japanese kid gets. It was not school as we know it, but more like a juvenile OCS. His teachers always talked about the "divine mission" of the Japanese boy to die for his country and emperor, and that Nippon was destined to rule the world. He was indoctrinated with the belief that the Japanese army was invincible and that the Japanese soldier would never surrender. Miyoshi learned the virtue of *Chugi* (loyalty) and the slogan, *Nippon Seishin* (Japanese spirit).

His formal military training started when he was 8, in his third year of school. The teacher put the class through dismounted drill a couple of hours a day. Later on he was given an undersized rifle so that he could practice the manual of arms.

When Miyoshi finished primary school, at the age of 12, he got a chance to go to middle school. At 14 he was on his way toward being a tough, fanatical soldier boy, and his whole life was regimented and centered on unquestioning obedience. His mind was as rigidly trained as his body.

He never read anything but the carefully designed school texts, strictly censored books, and an occasional tightly controlled newspaper.

He never heard or read a single word of criticism of his emperor, his government, or his army.

When Miyoshi was 20 years old he appeared before an army examining board and his card was stamped *Genekihei* (active service).

Arriving in a training camp of the Kanazawa Divisional District, Miyoshi was handed a uniform with collar tab bearing the single star of the *Nitohei,* or private, and assigned to infantry.

The first important formation was the presentation of rifles. The band played, flags flew and the regimental commander made a speech telling the recruits that the rifles they were receiving were symbolically the same as the samurai sword of the ancient Japanese warrior.

From January to May, Miyoshi trained with a squad in bayonet drill and target practice. Sometimes they went out on a 5-day march, bivouacking every night in temperature close to zero.

In June and July Miyoshi, now wearing the two stars of an *Ittohei,* or Pfc., was training in platoon and company formation. They were marching 20 miles a day and the going was rough, but no one dared complain or show weakness.

From August to November his group was employed in battalion and regimental training. They were in the field most of the time doing combat firing, marching 25 miles a day, practicing swimming with packs, and finally going out on fall maneuvers. Here Miyoshi did very well.

One of the lessons he learned in maneuvers was that "Soldiers of Nippon never retreat. Whatever the cost, we attack."

His squad was artful at camouflage. They knew how to use foliage and mud to blend into the surroundings, and learned how to be snipers by sitting in trees for hours at a time, almost motionless. They were complimented on clever infiltration, made a good record on reconnaissance, and sketched everything that they saw, from mountains to cows.

In firing problems Miyoshi's squad moved with speed and excellent discipline. Tight control was maintained. Miyoshi had little trouble understanding the orders he received; attack plans were usually simple, involving frontal assaults or envelopments.

They marched as much as 75 miles with full pack and went without food for two and three days at a time to get used to hunger and fatigue. A considerable amount of their work was done at night.

Much emphasis was given to morale during the first year's training. Miyoshi was lectured almost daily on the duties of a soldier. Every few months he listened to a reading of the Emperor Meiji's "Imperial Rescript to Soldiers," stressing the 5 principles of military ethics —loyalty, courtesy, courage, truthfulness and frugality.

Combat

After graduating from NCO school, Miyoshi was promoted to *Gochō* (corporal) and was sent to China to join his division. It was a standard triangular division with an authorized strength of 20,000, comprising three infantry regiments, one regiment each of artillery,

*Prepared under direction of Asst. Chief of Staff, G-2, Hq., Fourth Army, Fort Sam Houston, Texas.

cavalry, engineers, a transport regiment and the usual service troops.

Miyoshi learned after a few months of combat that this business of the soldier being a gentleman was all right back home, but once you got away from Japan, it was different. You lived off the population and grabbed whatever you could.

If Japanese soldiers were brutal in their dealings with the population, they were tough on each other, too. Corporal Miyoshi was told that he would be considered weak by fellow NCOs if he did not beat his men. He could order his inferior to do such menial work as washing his laundry, making his bed, and polishing his shoes.

A short time after he joined his division, it left China and landed at Rabaul, New Britain. Here the men were issued additional supplies of jungle equipment, including camouflage clothing, tree saws, lightweight uniforms, and mosquito headnets.

Jungle Fighting

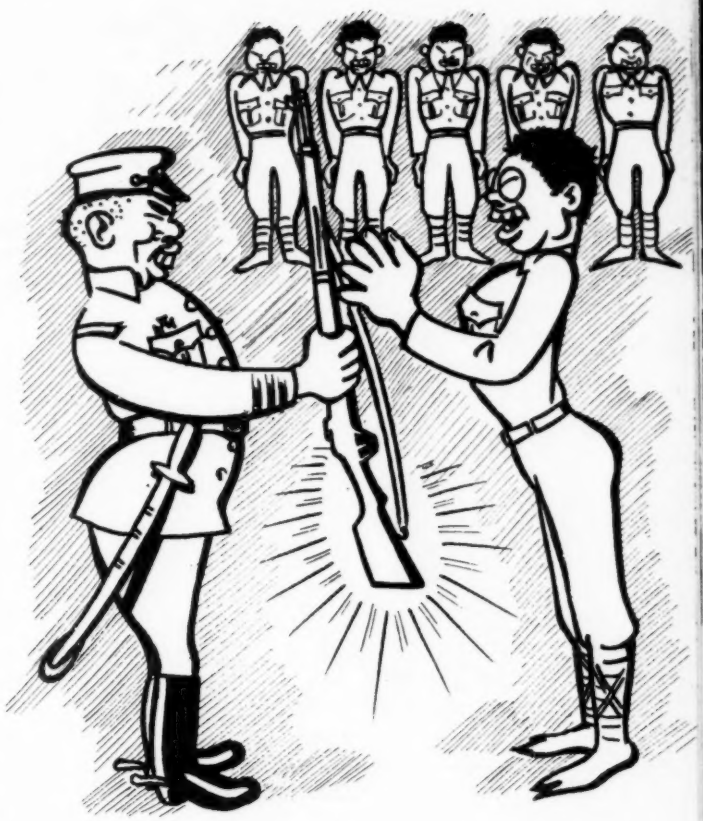
Miyoshi's regiment then headed north into the jungle. Australians were the enemy in this area, and for the first time he was going to fight against white troops.

Miyoshi's baptism of fire on New Britain came when he led his squad in a night attack. He checked his men for camouflage. Their faces were daubed with mud, foliage was twined in the camouflage nets on their helmets, and all wore sneaker-like *tabi*.

Their plan was to approach through the jungle at a point where the Australians would not expect them because of the difficult terrain. The squad left at dusk and moved silently through the heavy underbrush. It was heavy going, but there were no complaints, for the men had been trained for it. When they approached the enemy position, the squad slowed down and redoubled precautions to get through undetected.

Miyoshi's squad was on the right flank of the Australian bivouac. By hand signals the corporal directed the men to advance individually. They moved slowly around the Australian outguards, and waited until midnight. Then the attack was opened by a small force in the center which charged headlong, screaming and yelling. The Australians were taken by surprise, but nevertheless quickly organized and began laying down a curtain of fire. The flanking squads, including Miyoshi's then went into action. They succeeded in almost encircling the Australians, inflicted heavy casualties and finally forced them to withdraw.

During the next three months the regiment continued advancing steadily through the jungle. Miyoshi's tactics became almost second nature. His squad was part of the advance guard. When it made contact with the enemy, it immediately deployed, then tried to infiltrate the enemy position. If this was impossible, it held its positions and engaged the enemy, knowing that help would soon come up from the rear.



Miyoshi lost more than half his squad during the first three months of fighting. His captain, however, only complimented him on the bravery of his men, assured the survivors that the dead were destined for a cozy place in heaven and arranged ceremonious cremations of the honored corpses.

As the troops penetrated further into the jungle, the supply situation became more difficult. They had to subsist on what could be found in the jungle, supplemented by dehydrated and canned rations. They were able to get along, because they had been well-schooled in how to live off the country. When they came upon a native village, all the cattle were seized, and if there were any objections the natives were shot and their huts set afire.

An Australian, captured by Miyoshi's squad, was taken to the platoon leader, who knew some English. The prisoner was uncoöperative; he even refused to bow, and declined to answer questions, even though menaced with a pistol. So Miyoshi was given the honor of slapping the prisoner, and then cutting him to pieces with a bayonet.

New Guinea

In March, 1943, the division sailed for New Guinea —closer to the prized goal of Australia and control of the entire South Pacific. Miyoshi's excitement was enhanced by a promotion to *Gunsō* (sergeant). He

was told he had earned it because he had never flinched in battle. Not one man of his original squad was left.

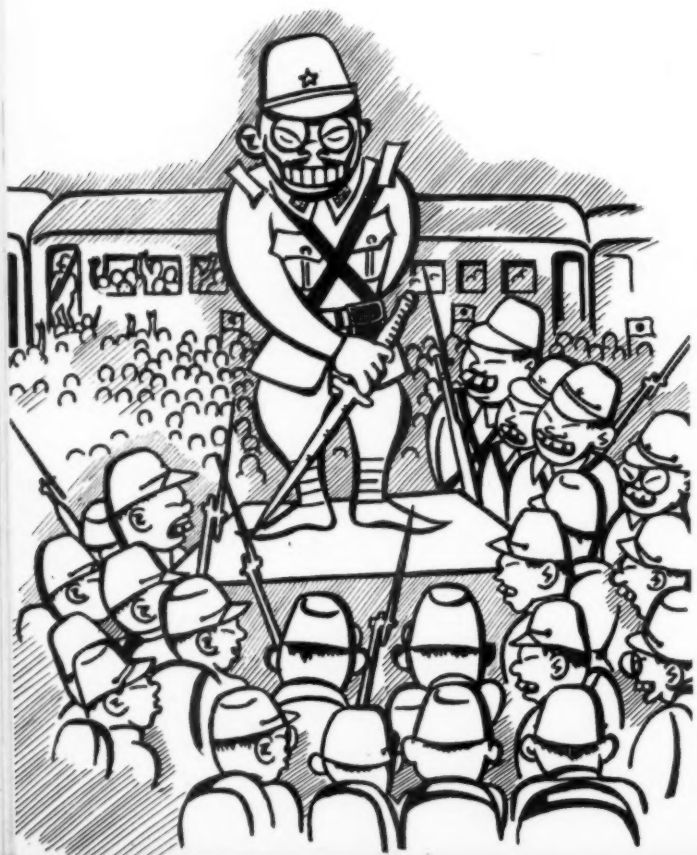
His captain contrasted his bravery with the cowardice of another corporal who had withdrawn his squad when faced by a murderous cross fire. This corporal, at the captain's "suggestion," later went into the jungle and set off a hand grenade against his belly.

The division landed at Lae, on New Guinea's eastern coast, and went into action against Australian and American forces. It was tough fighting, the enemy was stronger, and more battle-wise, and had artillery with an apparently limitless supply of ammunition. (Miyoshi's officers did not seem quite so confident.)

Attacks were becoming increasingly expensive, but there still were plenty of tricks to use. The infantry would creep close to the American artillery barrage to avoid getting hit, and then slip back when the firing stopped. The mortar platoon behind Miyoshi's unit would often fire beyond an American barrage into their advancing troops, then stop firing when the American fire had ceased. The object was to deceive the American infantry into thinking that it was being fired upon by its own artillery. Greater emphasis was put on night infiltration and flank attacks.

Banzai!

There was still expensive frontal attacks, and suicidal *banzai* charges. Miyoshi and his men sometimes would drink a lot of *sake* before a charge because, despite the knowledge that there was no greater glory than to die for the emperor, they were a bit nervous. Many a Jap never lived to suffer a hangover.



Finally Miyoshi's platoon had to dig in. Snipers were placed at bends in jungle trails, along ridges and in ravines, and booby traps were set to hold up the advancing Allied units. Once Miyoshi had his men drag a dead American soldier close to the Japanese lines and prop him up. When some Americans came to "rescue" their buddy, Miyoshi mowed them down with machine guns.

One of Miyoshi's squads was assigned to booby-trap everything possible, including swords, dead bodies, and even tree stumps.

One night the customary counterattack was ordered on the Americans. It started in the usual manner with the shooting of fireworks, tracer bullets, and much screaming and yelling. The company then charged against the same position it had unsuccessfully attacked for three days.

It now had become a matter of "face" to take this position. The charge went in with no variation in the tactics that so far had been ineffectual. With blood-curdling yells of *"Banzai"* Miyoshi led his bayonet-armed squad across the field.

Suddenly Miyoshi felt a sharp, burning pain in his stomach, and he fell to the ground. He laid there debating whether to take his life or risk the dishonor of capture. Finally he decided that he was too weak from loss of blood to take his life now. . . . Maybe later. . . .

After a half-hour he was dragged back into the Japanese lines and given first aid.

His division had been virtually destroyed, and the remnants were withdrawn to Wewak, where Miyoshi was put on a hospital ship bound for Palau.

Miyoshi G-2's The Americans

In the Palau hospital, he was quizzed by an intelligence officer who was interested in American combat tactics.

"In the first place," Miyoshi answered, "they always have a tremendous amount of machinery and artillery, and they know how to use it. They construct roads and communication networks rapidly.

"Their artillery is extremely accurate. They move fast, and have a great deal of fire power. They are daring on the offensive, but they don't waste men."

"What are some of their weaknesses?" the officer asked.

"I would say their greatest weakness is carelessness." Miyoshi answered. "They talk loudly and even smoke during an engagement. Once we attacked an American bivouac and found their rifles stacked.

"They are suckers for some of our ruses. Since they always hunt souvenirs, we booby-trap swords, pistols, and other objects and scatter them around on the ground.

"Infiltration of their positions is usually easy because of the gaps between their positions.

"The American soldier likes comfort, and it is easy to approach his position during a rainstorm, when he will lie low in a foxhole and seek the cover of his poncho.

"They are trigger-happy, and fire at the least noise. We often locate their positions by making noises which tempt them into shooting."

After 6 months in the hospital, Miyoshi was assigned to a replacement outfit going to the Philippines.

He arrived on Leyte in September, 1944, for duty with a veteran infantry division. Tactics seemed to have changed. His unit was digging-in like mad, building bunkers, pillboxes and trenches. Such defensive preparations were new to the sergeant, who had been indoctrinated with the concept of an invading and marauding Japanese army.

Defense of Leyte

At an NCO meeting the colonel gave an idea of what lay ahead.

"The Americans undoubtedly will try to land in the Philippines. Some of you come from fighting in the southern regions, but here you will not throw away manpower needlessly. We can't afford it any more.

"We will take the offensive wherever possible, but only when there is a chance of success. Concentrate all your energies upon preparing defenses. Camouflage will be inspected, and leaders deficient in concealing their positions will be heavily punished."

The division constructed defenses in the Ormoc Valley. Foxholes were shaped like inverted boots, with a firing position in the "toe," and a shelter from artillery fire in the "heel." Many artillery pieces were emplaced in front of deep caves in order to protect the gunners. Firing positions were mutually supporting and well camouflaged.

"No Withdrawal"

One day a formation of Unites States carrier-based bombers gave the island a going over. Miyoshi heard that the main target had been an airfield. After that air raids came with increasing frequency.

The Americans obviously were preparing to attack Leyte and, with customary Yankee disregard of material cost, were expending tons of explosive on the softening-up prelude.

This phase reached its climax when a naval task force appeared off the coast and shook Leyte for days with explosions. Fuel stores burned, and the air was constantly full of the roar of bombing and strafing planes.

Miyoshi and his men spent a lot of time in their caves.

One day word came that the Americans had established a beachhead and were pushing north toward the valley.

"There will be no withdrawal from Leyte," the colonel said. "Everything depends on how you defend your positions. We will await their arrival here in Ormoc Valley."

Miyoshi's unit went into positions on high ground south of the village of Pinapoan. The machine-gun

squad was moved to an emplacement on the forward slope of the first of a series of ridges in the valley. Smoking was not allowed, and talking or moving around was held to a minimum.

Night came without a sign of the Americans. Perhaps they had been held up and wiped out before they could reach Ormoc Valley. Perhaps, but Miyoshi did not sleep that night.

Early the next day an observer reported movement ahead. Soon the foliage moved and an American scout appeared. Miyoshi raised a warning finger to hold fire.

The scout passed within 30 yards of the bunker without seeing it. Other advance American elements passed, and still the machine guns held their fire.

Soon a larger formation began coming up. This was what the defenders had been waiting for. When the main body came within range, Miyoshi's squad opened fire. Almost simultaneously dozens of other machine guns began to stutter, and mortars in the rear opened up.

Many Americans fell and the rest sought cover. The two forward companies were isolated and pinned down for two hours, unable to receive supplies or evacuate their wounded. Sergeant Miyoshi hoped the entire enemy battalion would be wiped out, but near nightfall the remainder of the American regiment pushed through, and extricated the remnants of the two companies.

In the ensuing days the Americans brought up reserves. Miyoshi's squad clung tenaciously to its position. When artillery or mortar fire fell they left their

weapons and moved back by a previously prepared trail to a protected reverse slope. When the American fire ceased they returned to their original positions.

Instead of the hysterical counterattacks or *banzai* charges that Miyoshi had known in New Guinea, his company would wait until dusk, and then launch counterattacks. They were supported by automatic weapons and mortars to prevent the Americans from consolidating their positions.

Busy Nights

These were busy nights. One night Sergeant Miyoshi would cut telephone wires behind the American lines, then wait to ambush linesmen who came to repair them. Another night he would be out with a party of snipers, who, instead of operating singly from trees, now worked on the ground in groups of threes or fours. They had instructions to shoot at foot troops, especially litter bearers and aid men. Vehicles were not to be fired on.

One day, as Miyoshi and his squad manned their machine-gun nest, an American squad stole close to their position, and before they knew what had hit them, the Japs were enveloped in a fiery inferno.

Miyoshi recognized what it was—the dreaded Yankee flame thrower. He clambered out of his hole, his clothes aflame, and ran screaming for cover. He had not run 25 feet when a submachine gun rattled. The bullets kicked up the leaves around his feet, and he felt a sharp pain in his thigh as he stumbled and fell. He rolled over and over to smother the flames, and tried to drag himself away. But the effort was too much, so he had to lay still and feign death.

He heard the footsteps of three or 4 men coming toward him. He twisted his head to look and slowly reached for his pistol. Suddenly he lost consciousness.

Capture

When Miyoshi came to he was on a litter in an American first-aid tent. He was naked, except for a bandage around his thigh, dressings on his burns, and a cardboard tag around his neck. He was surprised that his wounds had been dressed, but concluded that his captors were trying to keep him alive so they could torture him.

One of the American soldiers, noticing that his eyes were open, called a lieutenant, who questioned him in Japanese. At first he did not answer, because no one had ever told him how to act if captured. He had been taught *not* to be captured, and he was afraid.

The lieutenant repeated the question several times, *"Anatano nama-aiwa nandeska?"* "What is your name?" But Miyoshi refused to answer.

The lieutenant kept on talking quietly. "You know that you can never return to your country because you are disgraced. Your only chance is to coöperate with us."

It seemed to make sense. His family and friends would consider him dishonored.

"My name is Miyoshi Toshio," he said slowly.

After he had spoken, it was easier. The lieutenant looked pleased. Perhaps, Miyoshi thought, he could save himself from torture. He gave his rank, and the number of his unit.

He was given food and water, and even a cigarette. He talked more freely now, telling what he knew of his unit's positions and arms.

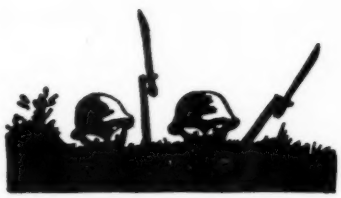
Later he and 4 other prisoners were sent to the rear to a prisoner inclosure. One night one of the prisoners who understood English whispered to Miyoshi: "The guards are saying that we are to be sent to America."

Miyoshi's eyes widened with dread as everything he had been taught about American barbarity flooded through his mind.

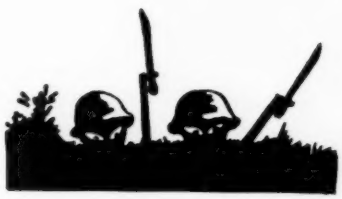
He lay awake thinking of nothing but escape. A sudden hysteria seized him. He tossed aside his mosquito net, wriggled to the barbed-wire fence, and worked his way under it. He then got up and started running. Suddenly there was a shout, a light flashed on his back, then a spurt of bullets, and Miyoshi folded up.

So died Sergeant Miyoshi Toshio, a victim of his own fanatical fear and hatred of Americans. He is the symbol of millions whose lives were dedicated to the cause of Japanese imperialism. This is the enemy whom we have defeated in battle. But our task is not finished! We must now devote unceasing and untiring effort to reforming the millions of Japanese symbolized by Sergeant Miyoshi Toshio. Equally important, we must insure that in the future the Japanese people never again are controlled and sacrificed by leaders dreaming of world domination.

The Slant-Eyed Viewpoint



(Editor's Note: *The following expressions of opinion by a Japanese soldier represent only the thoughts of an individual. However, it can well be assumed to be identical with the ideas held by many other Japs. The facts are authentic but for obvious reasons the source of this article must remain undisclosed. The subject is of absorbing interest at this time.*)



IT was interesting to note that during the initial phase of the conversation with this Jap soldier, he resorted to stock textbook phrases. This was particularly true when talking on subjects on Japanese ideology. He used the stock phrases, not because he believed them, but because these were the things he was expected to say.

After he had taken part in a certain amount of discussion, he spoke more freely and became quite realistic. It is felt that his statements were sincere and were the result of his own thinking rather than an attempt to please the person to whom the statements were made.

Because of his family background, his education and training, he was questioned in detail by an American to determine what his reactions were.

Asked first about the U. S. propaganda leaflets and the *Parachute News,* he expressed his admiration for their usage of the Japanese language and the timely quality of the subject matter. He had not actually had any occasion to read the *Parachute News* at all thoroughly since, as he put it, he had been about to, but had been interrupted and had disposed of the paper in such a way that it would give a definite impression to his observers as to what he thought of it. He did state that he had discussed the paper with enlisted men, and had noticed that their reaction had been favorable—though he himself had told his juniors from time to time that propaganda leaflets were false.

As the discussion of Japan's present position continued, he was brought up to date on the actual conditions in Okinawa and Saipan. He believed that both islands had been lost, but only after all of the inhabitants had been killed.

He had been convinced for some time, he stated, not that Japan had lost the war, but that the United States had won it; he said his phraseology was based on the extreme reluctance of the average Japanese to use the word "defeat" when speaking of themselves.

He accepted the fact that U. S. landings would be made on the homeland of Japan as they had been on the other islands, and stated that the problems encountered during landing operations in the South and Southwest Pacific would not be met on the Japanese islands because there was too much to defend. He did not think that the people would actively resist American operations there, but that they would take to the hills, because they had been taught to fear the Americans. Final victory would be America's primarily because the U. S. knew how to fight a modern war and the Japanese did not.

The initial reaction of the Japanese people to Allied occupation would depend entirely, he said, on how soon the people would be allowed to return to their farms, and when jobs would be available for others. The above statement was made only after he had asked how things had worked out on Saipan and Okinawa; he stated that civilian reaction there would, without any doubt, be indicative of what it would be in the islands of Japan. He said that, though these islands were not actually a part of Japan itself, the people were basically Japanese with the same sort of education and the same ideals.

His statements regarding the postwar period and the reëstablishment of some sort of government in Japan were nothing less than radical, particularly when viewed in the light of his earlier statements.

His terminology when speaking of the Emperor was informal. There was none of the traditional bowing and scraping when his name was mentioned.

He stressed the fact that he had not had much of a classical education, knew little of the theory of govern-

men either in Japan or in other countries. That, he said, was a subject only the surface of which he had touched.

He claimed to have developed his present conclusions while in the army, and stated that his thoughts had really not crystallized until he had finally had a chance to present them to someone else; and that the first occasion to so present them was this conversation with an American. There was more thinking to be done on the subject, he concluded, more for him to learn about other people—and there was always the necessity of determining in what way his theories could be put into practical form. He expressed his intense desire to help in some way in making the sort of Japan he felt should exist.

Japan, he continued, had been wrong in entering any sort of a war with the rest of the world, but, contrary to what other opinions might be, the basic causes of the war and those on whom the blame should rest should not be charged against the army or the navy; they ranked only in second and third place. Japan's ideology, her concepts of religion and her relation with the rest of the world with respect to her contention that the Japanese were the chosen race—all of these, represented by the position the Emperor occupied in the minds of the Japanese—were the basic flaw in the make-up of the Japanese people. They themselves were to blame, for they had never permitted themselves to emerge from the ideology of ancient days. Japan's concepts of deity represented by her numerous gods, and ultimately, the Emperor himself, were founded in myths, none of which had any practical basis for actuality at all. He explained carefully that the Japanese gods and her innumerable spirits were the mark of an uncivilized mind, the substitution of superstition for a civilized, and rational thinking.

What had made him first realize that Japan has no place in the world of today was the extreme emphasis placed on *seishin*, (spirit as opposed to materialism).

Being of a more practical nature, and having been trained to know and understand the power of machinery, he claimed he had detected the fallacy in the sort of reasoning which put the strength of a man's spirit above the potential power of machinery. This realization had naturally led to a close scrutiny of Japan's mythology and those concepts which were based on it. He regarded the Emperor ideology in the same light as he had come to regard *seishin*, and the people of Japan as the machinery whose power might some day be used.

There was only one conclusion which satisfied him; the power of the army and the navy had to go, but, even before this could be done, the Emperor and all he stood for would have to be wiped out completely. His death would mean the end of Japan's feudal thinking; the people would come to the realization that something had been wrong with their beliefs and, with a great deal of direction and careful education, they could be taught the ways of the modern world. No person who had ever been identified with the government of prewar Japan, no matter how liberal his ideas may have been, could be permitted to hold any position, for that would provide some connection with the old Japan. The break would have to be complete and clean.

He was asked how one would go about getting rid of the Emperor. The answer was that he would have to die. This, he admitted, would lead to certain complications as the Japanese could never assassinate him, and a deliberate attempt on our part after occupation might rouse the Japanese people to complete madness. His only solution was that "it would certainly be convenient if he were to be killed by a bomb."

He placed the thought groups of Japan into three general categories:

1. The relatively uneducated farmers.
2. The semi-educated skilled workers.
3. The technical men, and those who could be classed as scholars.

Businessmen he placed in the middle group, excepting, of course, heads of such families as Mitsubishi, Mitsui and the like. Present-day diplomats and other statesmen he placed in the third group.

The hope of Japan, he thought, rested with the skilled workers who had more in common with the people of other nations than had any other class of people in Japan. The farmers he relegated to the position of an unthinking group which could only be led, and he charged the highly educated with the crime of leading them for their own advantage. He felt strongly that those of the middle group would share his views, giving as his basis for opinion the fact that the majority of them had backgrounds similar to his own, and that almost all of them had experienced the same shock on their initial contact with reality. These, he said, were the practical men, used only to achieve results through the application of natural laws. Their minds were not involved in the dreamy, poetic fallacies represented by "cherry-blossoms and tears"; they would welcome a "materialistic" land and would be the first to cast off the "spiritualistic fantasy of outmoded Japanese thought."

Japanese reaction to a new government—if completely handled for the initial period of adjustment by the Americans without the assistance of any Japanese—would be favorable, since all they desired was a chance to live and to forget that there ever had been a war. Control should not be difficult during the initial period of readjustment if it were handled by the Americans alone, without the interference of any Japanese. It would be necessary to keep them entirely out of the government until the people themselves all knew, and were strongly behind their new government, their new ideals and their new way of life.

He concluded his discussion with the words, "The country of Japan is a thing of the past and must go, but the people of Japan are not lost, they are only on the verge of maturity."

SPITFIRE TANKS

by 1st Lieutenant Charles H. Hainfeld, CWS

MECHANIZED flame throwers are the close combat weapons of tanks that are effective in destroying or neutralizing enemy personnel in field fortifications, pillboxes, bunkers, dug-in positions, and in buildings where ordinary tank weapons cannot be used effectively. The flame either destroys enemy troops within its range or, because of its awesome demoralizing effect, drives them out into the field of small-arms fire. The flame thrower primarily is an offensive weapon. Its tactical mission is limited by its brief duration of fire, limited range and length of time required for preparaton.

Mechanized flame throwers have several times the fuel capacity of portable flame throwers, and are capable of engaging several successive targets with a single filling of their fuel and pressure containers. They can be used on more distant missions, have somewhat longer range and can move close into the target because the tank armor affords protection.

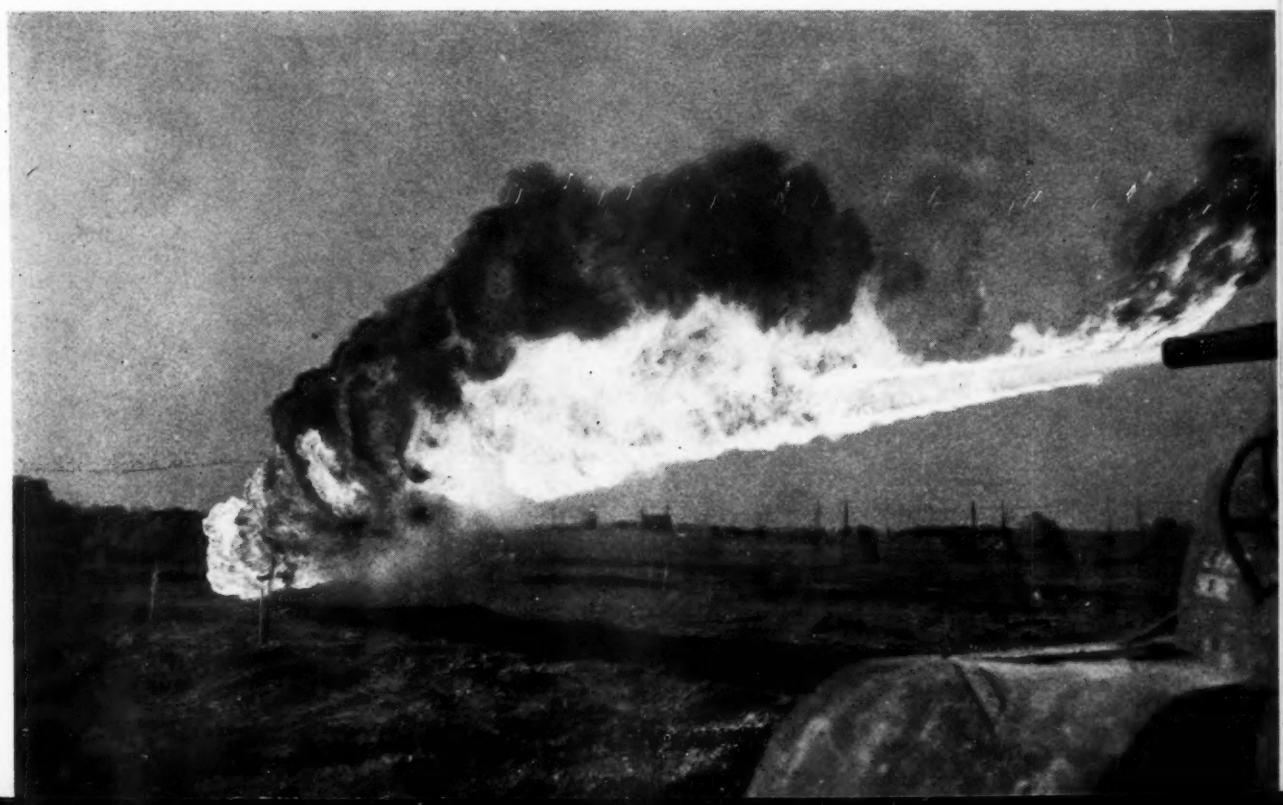
Flame-Thrower Ranges

The effective range of thickened fuel is 50 to 70 yards while liquid fuel (oils and blends) has an effective range of from 25 to 30 yards. These distances are approximate and are affected by the wind velocity and direction, the nozzle diameter of the flame gun, and the viscosity of the fuel.

The searching character of the flame results from the fact that flame and radiant heat will envelop a target. This gives the flame thrower an effectiveness even when fired at targets which are around the corners of buildings or emplacements. Against closed targets such as buildings and fortifications, the flame thrower produces casualties by materially reducing the oxygen content of the air, by producing carbon monoxide, and rapidly increasing the temperature. The enemy thus is forced at the same instant to protect himself from suffocation and burning.

When the flame thrower is substituted for the bow machine gun, its traverse is limited to that of the gun. This restricts the operation of the flame thrower to a small angle of traverse, and if targets are to engage outside the limits of the traverse, the tank must be moved. The substitution of the flame gun also reduces the fire power of the tank by one machine gun. The flame gun, however, is not a permanent replacement for the bow machine gun, and the two can be interchanged in approximately one minute.

The main armament of a flame thrower fires thickened fuel with rod effect in a demonstration. Range is to 70 yards.



Maximum Results

To achieve maximum results, the flame thrower should be fired at point-blank range or as close as possible to the target. Accuracy is achieved in this way and almost all the fuel is effective, since little is burned in the air. Conservation of fuel is an important factor which must be considered constantly by the flame-thrower operator The type of target will determine the length and number of bursts necessary for its destruction or neutralization. The short duration of fire makes it imperative that only the minimum amount of fuel be used when firing on a target.

Use Against Foxholes

Against troops in foxholes that cannot be directly engaged, the greatest effect will be obtained by firing a burst a few yards in front of the hole. This allows the flame to roll and billow in. Another effective method is to fire with maximum elevation so that burning particles will drop down *into* the foxhole. Against pillboxes, fire should be directed *against* embrasures, because the flame will seek it way into the interior. The dispersion of the flame is great enough to destroy or neutralize any personnel within a considerable distance of the burst. Fear of being burned alive will cause personnel to run from emplacements rather than dig into them. Regular tank weapons and small-arms fire, rather than flame throwers, should then be used for their destruction.

The flame thrower should not be fired into a strong head wind or across a strong cross wind, especially when liquid fuel is used. Direction and velocity of the wind must be taken into consideration when firing because at or near maximum range, cross winds will deflect, break up, and disperse the flame.

Mission

The mission of the flame thrower mounted in tanks is the destruction of enemy personnel who cannot be attacked effectively with other weapons. The flame-throwing tank is part of the mutually supporting infantry-tank team Because of its limited fuel supply it is not used promiscuously against suspected enemy positions. It should be used against targets that have definitely been located. The mechanized flame thrower augments and supplements the flat trajectory fire of the tanks. It is an anti-personnel weapon of limited range particularly adapted to clear the way for friendly foot troops, and for use in mopping-up operations. It serves as an auxiliary weapon in the tank and does not alter the tactical employment of tanks as prescribed by War Department doctrine.

For effective use against fortifications without antitank guns, the flame thrower must maneuver to within close range. To achieve this, all antitank weapons *supporting* the fortification must be destroyed. This operation requires close coördination with the infantry which makes the reconnaissance and guides the tank to the target. The flame is then directed against the openings of pillboxes and bunkers to destroy the personnel within and allow the infantry or engineers to advance on the fortification.

When fortifications are defended with large caliber flat trajectory weapons, and are mutually supporting, it is impossible for a tank to close within the effective range of its flame thrower. The weapons of such fortifications are first destroyed by tank and artillery fire, after which the flame thrower closes in and destroys the enemy personnel.

Training Operators

One member of the tank crew, usually the assistant driver, is assigned as the flame-thrower operator. In the bow replacement model the gunner operates the flame thrower in the main armament unit, but all members of the tank crew are thoroughly trained in the functioning, maintenance and use of the flame thrower. In addition, each member should be able to mount and dismount the flame thrower, prepare the fuel, and refill the fuel and pressure containers. Training in the flame-thrower crew is undertaken after completion of combat practice firing of the other tank weapons

Suggested firing course for training flame-thrower crews.

Armored Command Post

*by Captain Charles Gillett**

Upper left: **The re-designed M3 as it appeared after fitted to combat needs, in which it served efficiently. Features are an armor-plated top, and electric lights.** ***Upper right:*** **Chains and tools were carried in bumper.** ***Lower left:*** **Seated in the mobile CP, a crewman follows action on one of the two radios. Note ducts overhead of air-conditioning unit with which it was equipped. It controlled 70 tanks.**

AFTER many months of combat it was conclusively proven that the M3 half-track, as issued, was not an ideal command post car in fast-moving operations. The 2d Tank Battalion maintenance crew, under command of Captain Nicholas Hayden, went to work on suggestions for re-designing the M3, which were made by our battalion S-3, Major Philip J. Baird.

To a conventional M3, the tankmen added an armor-plated top and many other gadgets which evolved a half-track that permitted ultra-smooth operations during the 2d Battalion's drive into central Germany.

Skeptics were astonished by the half-track's operation in combat. Whether it was at a halt or on the march, the re-designed battalion command post—jokingly called "The Monster"—was ready for action at all times.

Compactness was stressed. Seats for the CP workers were made from mortar ammunition boxes and were cushioned on top. Supplies and papers were kept inside the boxes, thus utilizing all available space. Operations were charted on an adjustable table.

An important feature of the "rolling CP" was a separate power-driven generator that charged the batteries and overcame the excessive drain by the two radios, which kept communications functioning efficiently. On the move, the steel-girded half-track maintained its rôle as the nerve center for more than 70 roaming tanks. When "The Monster" was halted, lines were run to the companies and a telephone hooked up promptly inside the vehicle.

The air inside the half-track was kept fresh by the use of two motor-driven blowers. Maximum illumination was provided by 4 adjustable light globes against a white-painted interior. A canvas partition separated the driver from the glare of lights in the operations section and enabled him to operate efficiently. No light escaped to the outside to endanger blackout security.

The exterior of "The Monster" also came in for modifications. Records and supplies were carried in waterproofed boxes on the rear. Above these boxes, racks were built to hold the crewmen's bedrolls. A vise for emergency use was welded on the front bumper, and inside the bumper a place was provided for chains and tools.

*9th Armored Division.

Fiery Calling C

M47 100-pound jellied gasoline bombs fall from bomb bay doors on enemy target at Bremen, Germany, 1944. The M47 is 45 inches long and 8 inches in diameter. Dropped singly, it breaks upon impact and throws chunks of fire 40 feet, which adhere to and burn all objects.

FIRE is a menace as well as a boon. According to mythology, Prometheus, thumbing a lift from Minerva, obtained a light from the sun chariot and brought the gift of fire down to man. But whatever the manner in which it was first obtained, mankind since has put fire to wartime as well as peacetime pursuits.

Ancient Use

The incendiary arrow is one of man's oldest weapons. Alexander the Great, in a letter to Aristotle, reported "terrific flashes of flame" showered on his army in India. Xtessias recounted how the Hindus used a particular oil to ignite enemy targets. About 360 B.C. the Trojan king, Aeneas, resorted to fire bombs made from pitch, sulfur, tow, resinous wood, or other highly inflammable substances which were placed in pots and hurled from the walls of besieged cities upon attackers below. The Romans later catapulted iron-latticework bombs, which were about two feet in diameter, and were filled with blazing materials. Catapults also fired huge incendiary arrows, the heads of which consisted of a perforated tube containing tow, resin and petroleum that was ignited just before release.

Impetus to the use of incendiaries came with the introduction of "Greek Fire," said to have been invented by the Syrian, Callinicus, about 600 A.D., although there is evidence that like compositions were used in the fourth century A.D. The exact formula for Greek Fire has never been satisfactorily established, although it is known to have contained pitch, resin and petroleum, as well as quick-lime and sulfur. The material composing it ignited when the quick-lime, upon contact with water, generated sufficient heat to ignite the oil which fired the other combustibles. The resultant vapors caused explosions which spread the flames. Troops of the Byzantine Empire made such effective use of Greek Fire against the Saracens that it saved that empire from foreign domination for nearly a thousand years.

In early times animals, and even birds, were used to carry fire to the enemy. The Bible says that Samson caught 300 foxes, tied firebands on them, and caused the burning of fields and vineyards of the Philistines. In medieval days covered wooden rams were augmented by projecting containers of blazing matter, and floating fire balls were launched against shipping and water battlements. Cavalrymen sometimes fashioned torch-like gadgets to their lances to burn fields and buildings. An embryo "Molotov cocktail" was the chief weapon of a special troop of soldiers called "Napthyns" (naptha pot flingers) in the armies of the Caliph of Bagdad in the 12th century.

Use in Later Wars

The effectiveness of early incendiaries was lessened by the development of firearms, which caused armies to engage at greater distances, and by the substitution of earthworks for battlements. This invited attention to incendiaries fired by artillery. During the War Between the States, 30 especially made incendiary cannon balls were dropped into Charleston under cover of darkness, causing General Beauregard to protest to General Gilmore, the Federal assault commander.

Although the French in 1878 and the Germans early developed an incendiary artillery shell, such shells were not used to any extent until World War I. The first incendiary munitions employed in that conflict were directed against observation balloons. At the close of 1915, however, improved types of incendiary shells were used by both sides. These soon were followed by incendiary grenades, mortar shells and projector bombs.

The first use of incendiaries by aircraft occurred during the Zeppelin raid on London in 1915 during which one airship dropped 90 such bombs. Subsequent development of the long-range bomber spurred interest in the aerial incendiary. German planes rained many fire bombs in their "blitz" on London in 1940. The world knows how the United Nations retaliated.

Use Against Japan

Because of the different nature of targets, however, the fire that rained from the sky on Europe was insignificant as compared with that which fell on Japan. In fact, it can be said that this—one of man's oldest weap-

gCards *by Lieutenant Colonel George O. Gillingham**

ons—was highly instrumental in putting the Rising Sun into reverse.

The Japanese have a traditional dread of flame. Their flimsy construction has suffered much from conflagrations started by volcanic, earthquake and other causes. In consequence, fire weapons such as incendiary bombs, flame throwers, and white phosphorus shell and grenades were "naturals" in our Pacific offensive.

Aerial missiles not only helped to overcome resistance along the road to Tokyo but were markedly terrifying as well as destructive when used on the homeland. It remained for the atomic bomb to clinch what the fiery calling cards had prepared.

If Nippon had prolonged the inevitable, the fire-drenching it had received would have taken on astronomical proportions. In the current fiscal year, for example, the Chemical Warfare Service was scheduled to furnish fire missiles equivalent to the total tonnage of all kinds of air bombs (high explosive included) which were dropped by the Army Air Forces in all theaters last year. CWS to date has produced some 250,000,000 incendiary bombs, of which 66,000,000 were supplied to the British.

Since 1941 the CWS has had the responsibility of providing all types of incendiary material used by the armed forces, to the inclusion of the Navy and Marine Corps as well as the Army air and ground forces. Such production in the closing days of the conflict became the major class activity of CWS as measured by dollar volume.

During the early days of the war, aerial fire bombs accounted for less than 5 per cent of AAF bomb loads. When the war ended in Europe, this figure had jumped to 9 per cent. This ratio did not take a tremendous jump until the offensive concentrated on the Pacific. It remained for the all-incendiary raids on the Japanese homeland to underscore the effect of fire from the sky on native construction. In June, the proportion of incendiaries to high explosive dropped by the air forces had reached nearly 50 per cent.

Incendiary Bomb Types

Thanks to planning and industrialization, fire bombs were being produced in quantity within a few weeks after the sneak attack on Pearl Harbor. The initial fire bombs used by American airmen were of the magnesium variety, adapted from British and German types. For the first air raid on Tokyo, in April, 1942, however, the CWS produced a special 4-pound thermate bomb.

But styles in bombs also change, and most of the incendiaries subsequently used were wholly developed by the CWS technical staff in coöperation with American scientists and research groups under the auspices of the National Defense Research Committee of the Office of Scientific Research and Development. These include bombs of magnesium, thermate, phosphorus and oil compositions. They range in size from 4-pound "firesticks" to 1100-pound "factory-burners." Those in use in the last stages of the war in order of their size were:

The M50—a 4-pound hexagonal magnesium body, 21 inches long, filled with thermate and first fire mix. It is dropped in clusters, and burns from 5 to 10 minutes. Chunks of molten magnesium from its casing may be hurled as far as 50 feet. The uninitiated have a tendency to confuse "thermate" with "thermit." The two terms are not synonymous. "Thermit," consisting of aluminum granular and iron oxide scale, is commonly used in welding steel rails. "Thermate," on the other hand, is a mixture of thermit, powdered aluminum, barium nitrate and petroleum oil.

The M69—a 6-pound hexagonal steel pipe, 19 inches long, which works like a miniature flame thrower, expelling flame 75 yards from its tail. It is dropped in clusters. It contains a cheesecloth sock filled with about three pounds of jellied gas of the same type used in flame throwers. It looks like gelatin and is obtained by mixing a special thickening compound known as "fire roe" with 80-octane motor vehicle gasoline. Gobs of flaming jelly are thrown against walls and under eaves, where they stick and burn up to 10 minutes. Folded in the tail of each bomb are streamers which break free to slow its descent and prevent it from smashing to pieces when it lands, yet providing sufficient force to enable it to pierce tile, slate, wood, composition shingle or galvanized iron roofs.

The M74—a 10-pound tubular affair, 19 inches long which regurgitates Pyrogel, or synthetic lava. Also known as "Goop," this mixture includes jellied gasoline made with "Compound X," another thickener, consisting of magnesium powder, liquid asphalt and oil ingredients. The resulting jelly is whitish in color and vaguely resembles stringy cold cream. It thus combines the good features of thickened gasoline which can reach into corners, and of magnesium, which concentrates a white-hot flame on the target. A piston-like operation hurls gobs of this blazing goo a distance of 25 yards. At one end of the bomb is a collapsible metal tail which helps to hold the bomb on its course. It is dropped in clusters.

The M47—is a 100-pound jellied gas bomb with the same filling as the M69 bomb. Resembling a huge panatella cigar, it is 45 inches long and 8 inches in diameter. It is dropped singly. Thin walled, it breaks open upon impact and scatters chunks of fire as far as 40 feet, which adhere to and burn objects upon contact.

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*CWS, Chief, Information Branch.

The M76—is a 500-pound bomb filled with "Goop," the same mixture used in the M74 bomb, which spatters over the target like volcanic lava. This bomb preceded the M74. The term "Goop" was applied to it in the development process. "Goop" is a slang word used in laboratory work to denote a sticky mess. The rubbery-like mixture used in both the M74 and M76 has a sticky, pasty consistency. The bomb is dropped singly, and was used by British Mosquitoes in 1944 to get a building at The Hague where the Nazis had stored records about to be used against the Dutch underground.

Tank-Size Incendiaries

In addition, there are fuel tanks which are dropped from planes to spew large quantities of blazing thickened gasoline. These streamlined containers, in effect, are airplane fuel tanks put to an incendiary purpose. The idea is said to have originated in late 1942 when an Army airman, having released all his bombs, followed up with his fuel tank, which exploded on the deck of an enemy warship in the Mediterranean. The 500-pound tank holds 75 gallons of the fire gel; the 725-pound tank, 110 gallons; the 1100-pound tank (10 feet long and 28 inches in diameter), 165 gallons. The latter can splash fire over an area the size of a football field. Naturally, because of their size, these jettisonable tanks are dropped separately.

Fire bombs can be aimed with the precision of demolition bombs. The smaller bombs are dropped in clusters which break open at a designated altitude, usually 2,000 to 5,000 feet, and release the individual "fire-sticks" to pin-point the target. Improved "aimable" clusters are equipped with a nose and a tail to insure greater accuracy in their initial release from the bomb bay.

CWS INCENDIARY BOMBS AT A GLANCE

BOMB, type	WEIGHT, pounds	FILLING, incendiary	CLUSTER, type	NUMBER, bombs in cluster
M50	4	Magnesium, thermate	M6	34
			*M17	110
			M7	128
M69	6	Jellied gasoline	M12	14
			*M19-M21	38
			M13	60
M74	10	Goop	*E48	38
M47	100	Jellied gasoline	Dropped singly	
M76	500	Goop	Dropped singly	
Jettisonable tanks	500	Jellied gasoline (75 gal.)	Dropped singly	
	725	Jellied gasoline (110 gal.)		
	1110	Jellied gasoline (165 gal.)		

*Aimable clusters

Incendiaries on Tokyo*

MORE than 100,000 Japanese were burned to death in a single Superfortress incendiary-bomb attack on Tokyo last March 10, former Danish Minister to Tokyo, Dr. Lars P. Tillitse, reported.

Tillitse's account of the raid—the first such neutral account of the devastating bombings of the Japanese capital—was given in a radio address.

"I shall never forget the attack," Tillitse said. "Incendiaries were scattered all over the city and a gale swept the fire from house to house.

"From my window I looked into the roaring, flickering flames that devoured houses and trees and everything in their way. That night more than 100,000 Japanese were burned to death."

The raid described by the former Danish Minister was the twelfth Superfortress attack of the war against Tokyo. It was made by 300 B29s which dropped 2,300 tons of incendiary bombs, the biggest raid launched against the Japanese capital up to that time.

The bombs were dropped over a 10-square-mile area of the city shortly after midnight, but a gale then sweeping the Japanese capital fanned the flames through the center of the city until 17 square miles were burned out. A report from the Twentieth Bomber Command said that two B29s were lost.

Tillitse lived in Tokyo up to last May 25. His country broke off diplomatic relations with Japan on May 23 and on the 25th he left the city to join his family and await repatriation. That night the Superfortresses struck again.

Tillitse described the May 25 attack as "one of the most terrific on Tokyo." His house was burned to the ground by the flames, set off by 700,000 incendiary bombs included in the bomb total of 4,500 tons unleashed by 550 planes.

"When, later on, I stood on the place where my house had been, I could not see a single undamaged house," he said. "There were hardly any ruins—only ashes."

The May 25 attack lasted 105 minutes and burned out an additional 3.2 square miles for a total of 35.9 square miles destroyed in the city.

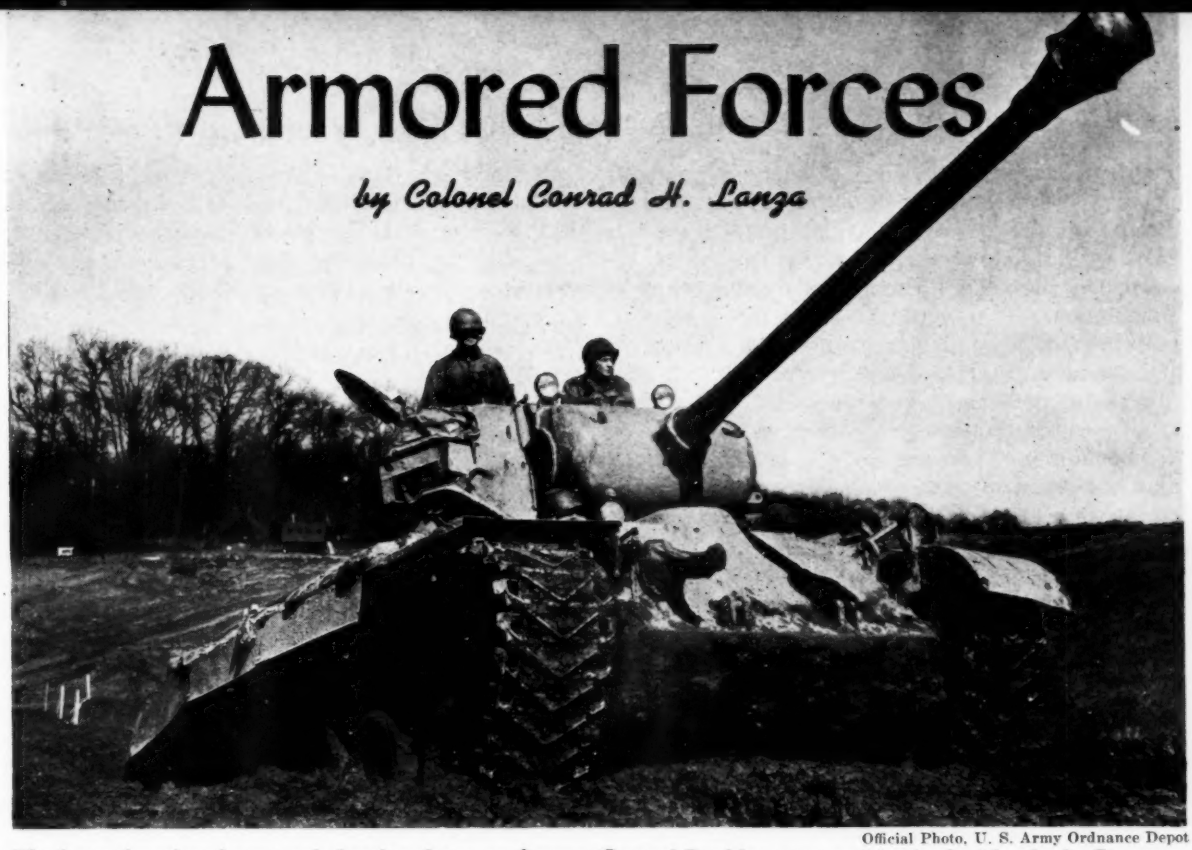
Later raids destroyed 110.8 miles in the Tokyo area and 56.3 square miles in the capital proper.

Tillitse said that intelligent Japanese knew after the American conquest of Saipan that they had lost the war.

**The Washington Post.*

Armored Forces

by Colonel Conrad H. Lanza



Official Photo, U. S. Army Ordnance Depot

The latest American heavy tank, bearing the revered name, General Pershing, was used in the final battles in Germany.

IN 1939, the German armored troops in Poland were a material factor in the success of that short war. Based on the lessons of that campaign, the employment of armored forces by the Germans in France during 1940, was a turning point in the use of armor. German armor penetrated the Allied front in masses and kept driving forward, either turning or piercing all resistance encountered.

The necessity of having armored troops to operate as independent combat units is now established. The number of armored troops has steadily increased. Exact figures are not yet available, but by 1945, armored divisions on the east and west German fronts amounted to perhaps 30 per cent of the total divisions in line. This percentage would undoubtedly have been greater if sufficient time and means had been available.

Employment of Armored Troops

Armor's greatest success in the current war was in open country, on the great plains of Russia, north of the central mountain masses in Europe; and in north Africa, where a contributing factor was the absence of fences, walls and ditches. Close and rugged country, such as the forests and swamps of north Russia, and the mountains and hills of Italy and the Balkans, limited the use of armor.

With the development of amphibious vehicles, water is no longer a serious obstacle, and can be easily crossed in open country provided the banks are negotiable. Weather, however, may affect the use of armor when continuous rains turn dry terrain into deep mud, as in the Philippines and Burma.

The German victories of 1940 in France, and of 1941 and 1942 in Russia, could not have been secured without the presence and the successful employment of armor. The alternate German and Allied victories in North Africa between 1941 and 1943 were dependent on armor. The victories of the Russians from 1942 to 1945, and of the western Allies in 1944 and 1945, could not have been won without the large armored forces at their disposal.

Conversely, the German victory in the Balkans in 1941, and the Allied victories in Sicily and Italy during 1943, 1944 and 1945 were not due to armor. Those campaigns could have been won without armor, and in fact only limited armored forces were utilized.

Combat

The major combat rôles for armored forces are: the penetration; the turning movement; tanks *versus* tanks.

The Penetration. Penetration is habitually preceded by artillery preparation—with or without an air strike. Armor alone has not as yet been able to fight its way through an appropriately defended position. Since the Spanish war, and throughout World War II, a path completely through the hostile position has had to be blasted by the artillery for the armor to pass through.

The width of the front to be blasted varies, but is usually from one to two miles. Depth is limited by the nature of the defenses, the artillery range, and the mission. The time required depends on the number and kinds of targets within or close to the area, and the gun range.

The Russians have been particularly successful in

artillery preparations designed to blast out gaps. As many as 400 pieces of 4-inch caliber, or over, per kilometer front have been used, and every target was plotted. This kind of artillery preparation requires coordination, fire control, strong artillery and plenty of ammunition.

In 1945, in the January break-through in Poland, the Russians were confronted with a series of enemy positions at such distances from one another that their artillery had to displace forward on successive days.

The mission of armored forces in breaking through may be to turn to right and/or left and roll up the enemy's lines, as at El Alamein. It may be to separate an enemy front and envelop one wing, as in Belgium in 1940, or it may advance deep into the enemy's rear areas, as the American break-through in Normandy in 1944.

As long as the artillery can furnish supporting fire without changing position, it covers the flanks and front of the armor passing through the gap. When the armor arrives beyond the range of artillery, it depends upon its own batteries and the air force for fire support.

It is customary, but not absolutely essential, to closely follow up the break-through with armored or motorized infantry to hold the gap open and protect the route to the forward armor. This infantry is equipped with medium and heavy artillery for rapidly reducing enemy road blocks and centers of resistance which interfere with the line of supply.

The most effective maneuver of the break-through has been to gain ground to envelop what had been the enemy's front. This may involve an attack from the enemy's rear, or holding a defensive position or a combination of both.

Such maneuvers have caused a revival of the ancient rules of contravallation and circumvallation. At Stalingrad in late 1942, Russian armor penetrating the German lines isolated the German spearhead. Lines of contravallation were then formed to prevent the besieged from breaking out, and lines of circumvallation to prevent relief forces from breaking in. At Dunkerque in June, 1940, a similar situation had been brought about by the previous German armored penetration.

In early April, 1945, American armor, which had broken through the German front north and south of the Ruhr, encircled an enemy force which exceeded 300,000 men.

The next most effective mission is to destroy the hostile supplies and communications. North Africa saw raids of this nature, as did France in August, 1945.

Penetrations at night by armored forces appeared late in this war and their success appears to rest upon mass employment. On the night of 15/16 April, 1945, the 1st White Russian Group attacked westward from its Oder River bridgehead toward Berlin on a front of about 30 miles. The artillery preparation was fired by a number of guns, equivalent to over one gun to every 2½ yards' front. The accompanying air strike employed about 4,500 planes. Four thousand tanks were used in the attack, and the front was illuminated by massed searchlights. There were about 5 times as many guns as tanks.

Turning Movements. Turning movements by armor are practicable where the enemy does not have a continuous front, as occurred from time to time in north Africa. It may follow a penetration, when an enemy wing has been isolated; or against reserves in enemy rear areas.

Where fronts are continuous, as was the rule in Europe, turning movements take place only after a front has been pierced and open country in rear of the enemy's main positions has been reached. The American campaigns of 1944 in France and April, 1945, in Germany were illustrative of this. Here armored troops were able to exert a decisive effect on the progress of the campaign by destroying supplies, interrupting communications and capturing isolated and detached organizations.

Tanks vs. Tanks. In north Africa, and also in Russia during 1941 and 1942, extensive tank battles occurred, but by 1945, tank vs. tank battles had all but disappeared. By this time, when tanks met tanks, both sides took cover, either in prepared pits or behind ridges or other available shelter.

Tanks fighting from fixed positions, natural or artificial, are really advanced armored artillery in direct or indirect firing positions. Tanks so engaged reproduce in technique the ancient artillery duel which was standard practice as a necessary precedent to an infantry assault. Neutralizing the hostile artillery was the classic commencement to a battle.

The Advance

After a penetration or turning movement by armored forces, an advance in hostile territory is required. Terrain is the major factor. In mountains or dense forests, armor is limited to narrow lines of advance where constant attack may be required. In open country armor has its greatest possibilities, because it can advance by either road or across country.

Armored troops require air reconnaissance and air cover. In the open country of north Europe, reconnaissance in clear weather was no problem. It ascertained whether enemy forces were posted between towns and woods, and sometimes could determine if the latter were held or not. Positive information of the absence of the enemy enabled armor to move speedily and without undue fatigue.

Armored vehicles on the advance are vulnerable to air attack, and here air cover is a necessity. The mission is not only to fight off hostile planes and to conduct reconnaissance, but particularly to locate, attack, and delay enemy intercepting forces.

Defended towns, woods, or other localities are at

times detached centers of resistance operating as road blocks. If possible, road blocks are not attacked by armor. Following supporting troops are charged with opening and maintaining lines of communication to the forward armor. Detached enemy field troops are dealt with according to their tactical importance. They can seldom be ignored but may temporarily be by-passed.

Armored force commanders may have a choice as to whether to attack or avoid intercepting enemy forces. This will depend upon the mission and the probability of success, based upon air reports as to apparent enemy strengths. Fixed defenses can be by-passed at will, but intercept troops cannot ordinarily be by-passed. When a battle is evidently approaching, regardless of whether it is brought on voluntarily or involuntarily, armored troops usually have some choice of terrain. But advance notice of the size, course and speed of enemy intercept troops is needed to make a decision whether to advance and encounter, stand and receive, or retire and defend.

Armored troops operating in enemy rear areas may be supplied with gasoline, oil, ammunition, food and essential supplies, either by capture or by air. In the early stages of the current war, capture was the usual method, but as the war progressed, dumps in rear areas were more strongly defended. Therefore hostile troops breaking in could not take them without attacking. This caused delay and often interfered with the mission.

With improvement of air transportation the capturing of supplies for forward troops should usually not be necessary. Forward armor can be relieved from seeking and securing supplies in a hostile land. Air supply presupposes air superiority, or air operation ability. If the enemy has air superiority, air supply cannot be counted upon. In December, 1942, Russian local air superiority near Stalingrad prevented air supply not only to the besieged, but to armored forces seeking to relieve them.

Defense vs. Armored Forces

It is impracticable to prevent occasional penetrations of a front by hostile armor, and turning movements by enemy armor must be considered as a possibility. Two methods have been tried to oppose penetrating armor.

The defensive method is to hold and defend critical points in rear areas with an all around defense. Dumps, depots, bridges and important railroad and road junctions thus defended prevent hostile armor that might break through from obtaining any supplies outside of the defended dumps.

The offensive method is to meet armor with armor by holding the armor in readiness to attack and intercept the hostile troops.

A combination of the two methods may be practicable and advantageous. The defensive method alone has failed to work. It was tried by the Germans in the later phases of the Stalingrad campaign. Russian armor bypassed defended places and left them to be dealt with by the troops which followed. Employing particularly large forces of artillery, Russian troops rapidly isolated and reduced enemy centers, and kept their forward armor supplied by ground transportation supplementing captured supplies.

Armored forces to head off hostile armor penetrating a front was tried by the Russians in 1941 without much success. They did better in 1942, and improved as the war went on. In principle, intercept armor is held far enough back to be independent of the fate of front-line battles. If hostile armor should break through, the intercept armor is advised by air reconnaissance or other means. It then proceeds to intercept and bring the enemy to a halt, while other available troops close around the intruders and endeavor to encircle them.

This maneuver requires high tactical efficiency but if properly executed may lead to annihilation of the enemy.

Intercept armor replaces the old *reserve* that was held in rear of the front to reinforce threatened sectors. The speed with which modern warfare now moves prevents the use of local reserves in time to be effective against troops dashing through a gap, unless it happens to be near the penetrated positions.

A combination of defensive and offensive protection affords the best defensive. Centers of resistance should deny access to gasoline, oil and supplies to an enemy breaking in.

Types of Armored Vehicles

Experience has indicated that the size and type of traction of armored vehicles should vary with the theater of operation. Tanks suitable for debarking from landing craft over sand beaches and dunes may not be the best type for open terrain. Climate too must be considered—excessive cold as in Russian winters, or heat as in the Sahara desert, require special modifications of armored vehicles.

Mountain areas do not preclude the use of armor, but the quantity and types that can be employed is limited. The Italians developed special types of tanks and armored vehicles appropriate to their country. Such tanks were small and could travel along steep slopes. They worked well in Spain and in Ethiopia where the enemy had no effective antitank weapons, but the tank capable of operating in mountains was not very effective for maneuvering under fire against antitank guns.

While speed is an important factor in tanks, and may enable armor to avoid action in desert country, alone it is insufficient to avoid or force an engagement where movement is restricted by defiles under enemy fire or control.

The tendency of the current war has been to increase not only the number of armored troops, but also the size of tanks, and the caliber and quantity of the armored artillery. The end in this direction is not in sight. It seems probable that larger tanks and armored guns will soon be available.

Bridge Laying by Armor

*by Major John North**

The "Avre," a new British engine of war, is the most versatile fighting vehicle to be found among the armies of the world. It performed a spectacular rôle on the Western Front.

KNOWN as The Armored Vehicle, Royal Engineers, or Avre, the British armored assault vehicle is a multi-purpose weapon which attunes itself perfectly to the rôle of both the sapper and the Royal Engineers, whose duty is to breach fortifications.

Its specialized equipment makes it possible for engineers to build bridges under a protection of armor, and for sappers to get close to a strongly defended position with the greatest possible weight of explosives.

Part of such a unique accomplishment is possible because of the highly accurate, and specialized bomb-throwing mortar mounted in the turret called a "petard," which also is a British invention. When it was realized that several rounds from the petard could breach 10-foot concrete walls, the possibilities of the Avre in "fluid" warfare were recognized. This was demonstrated on D Day and for some time afterwards, when it fulfilled its original function by breaching the German defenses along the Normandy coast line, and at La Havre, Boulogne and Calais. Here it was found that even though the Avre's only antipersonnel weapon was a Bren gun, its crew could destroy, sometimes single-handed, enemy 88mm guns, lock gates, and village strong points. The sapper in the Avre, however, did not depend entirely on the use of the petard for such work, but carried explosive charges known as "beehives," which could be placed in the old-fashioned way.

Further versatility was given the vehicle through its basic design. Although built from a Churchill tank, it carries no tank armament. This space is used for additional specialized equipment which made possible the performance of its many battlefield functions. Although the crew of an Avre is thus in the position of a golfer who selects a particular club for a particular shot, it is as a bridge-layer that it excels and is able to speed up the advance of the infantry and armor.

In addition to its armor and weight-carrying capacity,

*British Staff Officer.

British tanks which could carry and lay their own bridges played an important part in France's liberation. Below is shown a "Scissors" bridge as mounted on a Valentine tank.

The method of unfolding the "Scissors" bridge as carried by tank in the photo to left, and laying it across a hole to form a bridge is shown below. Four types were in use.

British Official Photos

it has mechanical power, which is of no less importance. It can push and it can pull; and it is itself mobile.

As examples of its mechanical performance it can carry a 30-foot box girder bridge on its nose and drop it over an antitank ditch, or, to make itself less conspicuous to the enemy, it can tow the bridge to the site; it can push across a river a 60-foot "Skid Bailey" bridge; and can also tow to any site an 80-foot "Mobile Bailey."

The tank bridge of the Avre must not be considered a substitute for the conventional Bailey, however, but rather as a device for use in critical situations during which a few moments' halt in an assault's momentum may well delay success by days.

A typical picture of the Avre bridge-layer in action is provided by the story of the launching of a tank bridge during the British drive on the Maas. During the attack on Venraij, a meandering stream was found to be far wider than had been anticipated. This made a crossing with fascines impossible. While supporting guns fired smoke and high explosives, an Avre carrying a tank bridge trundled forward to the stream through 500 yards of heavy fire. At the stream a large crater was found which made it necessary to bridge a combined distance of 40 feet. Mines prevented the sergeant in the Avre from moving to either side, but he successfully placed the bridge across both crater and stream. The apparatus that fixed the near end of the bridge then jammed, and the sergeant dismounted and lifted one of his crew on his shoulders to release it. This bridge furnished the division's only crossing for the first 24 hours, and remained in use for two days.

A bright future awaits the development of the idea behind this armored vehicle, for it gives the British Royal Engineers mobility, which is only another word for ubiquity. Despite the intensity of modern fire power, it takes them to the forefront of the battle, and thereby foreshadows the sappers of the future.

British Official Photos

Above, a "Churchill" bridge-layer has in 10 minutes completed the bridging of an antitank ditch in Holland. Over the bridge goes a combat tank while others wait in rear.

An "Ark" bridging tank has formed a ramp against a sea wall, which is successfully scaled by another tank.

THE "CHALLENGER" — HEAVY CRUISER TANK

*by Major R. W. Murland**

THROUGHOUT the Allied war with Germany, the conflict between gun and armor has been the dominating factor in tank design on both sides. The progress of this conflict was rarely reported in the day-to-day news bulletins and communiques, but it is no longer a secret that the German Army had a lead in gun development, of which they took every advantage. British guns improved steadily, however, and their superiority was established when the 17-pounder made its successful and timely appearance in the Tunisian campaign.

British operational plans had always envisaged the fast cruiser-tank as one of the most important weapons, and by 1942 the Cromwell tank was already a reality as part of Britain's long-term preparations for the invasion of Western Europe. The Tunisian campaign showed that a cruiser-tank with the new 17-pounder gun would be of the greatest value, and steps were accordingly taken to adapt the existing Cromwell design as quickly as possible to accommodate the new gun.

Stated baldly, it sounds simple to "adapt the Cromwell design to the new gun." In fact, the adaptation presented innumerable problems to the designers; it is only necessary to recall the very considerable differences in length, weight, and size of ammunition between the 75mm gun of the Cromwell and the 17-pounder, to realize the magnitude of the problems involved. The Challenger represents the practical solution of these problems.

The installation of a bigger gun must, in general, mean a bigger turret and, most important of all, a bigger turret ring. The ease with which the crew can load the gun and handle its ammunition inside the turret is dependent mainly on the available space; this space in turn depends largely on that key dimension the diameter of the turret ring. An increase in the turret ring diameter must itself mean increasing the over-all dimensions of the tank, and it will therefore be realized that "adapting the Cromwell design to the new gun" involved fundamental departures from that design.

The over-all dimensions of the Challenger are: 23 feet 8½ inches long (excluding the gun), 10 feet wide, and 9 feet 4 inches high. The total weight is 32 tons, or 4 tons heavier than the Cromwell. This increase in weight has not involved any reduction in speed, which is slightly in excess of 30 miles per hour. The power unit is the 600-horsepower Rolls-Royce "Meteor" engine.

The armament consists of a 17-pounder gun and a .30 inch Browning machine gun mounted co-axially with it in the turret which has all-around traverse and is power driven. Forty-eight rounds of ammunition for the 17-pounder are carried together with 3,750 rounds for the Browning machine gun, and there is a crew of 5: driver, commander, gunner, loader, and wireless-operator, the 4 last being accommodated in the turret.

In appearance, the Challenger shows obvious signs of its Cromwell parentage, though there is no likelihood of their being confused. The three characteristic recognition features of the Challenger are the long 17-pounder gun, 6 large road wheels on each side, and the distinctive high turret.

The Christie type of high-speed suspension, for long a noticeable feature of British cruiser tanks, has been retained with the addition of one suspension unit on each side. These additional suspension units not only increase the over-all length of the tank, but they also increase the "steering ratio" (i.e. the ratio of track length on the ground to width between track centers). From purely theoretical considerations this might seem to involve some greater difficulty in steering the tank; in practice, however, the same Merritt-Brown controlled differential steering system as is used on the Cromwell has proved entirely satisfactory, and no difficulties have been experienced in steering.

In the design or adaptation of any tank, it is axiomatic that new advantages can only be obtained at a price. Briefly, it may be said that the price paid for the 17-pounder gun in the Challenger has been an increase of 14 inches in the over-all height, and the sacrifice of a machine gun which might otherwise have been mounted in the front of the hull. It may be noted, incidentally, that the space necessary for this hull machine gun and its gunner has been employed for ammunition stowage. The over-all length and width have also been slightly increased, but these increases are of minor significance from the tactical or "user" standpoint.

The Challenger was first used in action in 1944 in the operations for the Allied liberation of Europe, and it is standard equipment in British Armored Regiments where it is used in conjunction with its elder brother, the Cromwell. The excellent armor-piercing performance of the 17-pounder gun makes the Challenger an ideal weapon for dealing with enemy armored vehicles, and it may well be described as the "tank destroying" element in the armored regiments.

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*5th Royal Inniskilling Dragoons.

Chronology of World War II*

1939

Sept. 1—Germany invades Poland, annexes Danzig.
Sept. 3—Britain and France declare war on Germany.
Sept. 4—Fighting begins in front of Maginot Line.
Sept. 17—Russian troops strike into Eastern Poland.

1940

Apr. 9—Germany invades Norway and Denmark.
May 28—Belgium surrenders.
May 29—400,000 British escape at Dunkerque.
June 3—Germans bomb Paris.
June 10—Italy declares war on Britain and France.
June 14—Germans enter Paris.
June 17—France surrenders.
Aug. 4—German air force begins heavy attack on Britain.
Aug. 31—RAF bombs heart of Berlin for first time.

1941

Jan. 10—Germany and Russia sign friendship pact.
May 20—Germans attack Crete in first airborne action.
June 22—Germany, Italy and Romania declare war on Russia.
July 24—Japs enter French Indo-China.
Dec. 7—Japanese attack Pearl Harbor.
Dec. 8—U. S. declares war. Japs attack Midway.
Dec. 10—Japanese land in Philippines.
Dec. 11—Germany and Italy declare war on U. S.
Dec. 12—Guam occupied.
Dec. 24—Wake falls after 14-day defense.

1942

Jan. 2—Japanese occupy Manila.
Jan. 14—First ship is torpedoed off Atlantic coast.
Jan. 26—First American troops arrive in Ireland.
Mar. 9—Japs overrun Java. Rangoon falls.
Apr. 9—Fighting ends on Bataan.
Apr. 18—Doolittle bombers raid Tokyo.
May 4-8—Japs lose Coral Sea battle.
May 6—Corregidor falls.
June 12—Japanese land in Aleutians.
July 4—U. S. flyers first bomb Western Europe.
Aug. 7—Americans land on Guadalcanal.
Nov. 8—Americans and British invade North Africa.

1943

Jan. 18—Reds break siege of Stalingrad.
Mar. 1-4—Japs defeated in Battle of Bismarck Sea.
May 30—Japs on Attu wiped out.
July 10—Allies invade Sicily.
July 25—Mussolini resigns; Badoglio become Prime Minister.
Aug. 17—Conquest of Sicily completed.
Sept. 8—Italy surrenders unconditionally.
Oct. 13—Italy declares war on Germany.
Nov. 1—Americans land on Bougainville.
Nov. 21—U. S. forces land on Tarawa.

1944

Jan. 2—Allies land behind Nazi lines at Anzio.
Feb. 17—Americans land on Eniwetok.
Apr. 21—Yanks establish New Guinea beachhead.
May 14—Gigantic Allies aerial offensive against Europe completes 29 consecutive days before interrupted by bad weather.
May 18—Cassino falls.
June 4—Allies take Rome.
June 6—Allies invade Normandy.
June 11—Yanks smash third of way across Norman Peninsula on 50-mile front.
June 14—Yanks land on Saipan.
June 16—First robot bombs strike Britain.
June 18—Russians crack Mannerheim line.
June 27—Americans capture Cherbourg.
July 7—B-29s bomb Japan.
July 18—Americans take St. Lo, France.
Aug. 15—Allies invade South France.
Aug. 23—Romania ends war against Allies; fights Germany.
Sept. 11—U. S. forces invade Germany.
Oct. 6—Yanks crush Siegfried defenses.
Oct. 19—MacArthur invades Philippines.
Oct. 29—Second battle of Philippine Sea, a crushing defeat for Japanese.
Nov. 16—Eisenhower opens mass drive on Germany.
Nov. 24—Super Forts bomb Tokyo.
Dec. 20—Von Rundstedt breaches Allied lines with 13 Nazi divisions, smashes toward Liege.
Dec. 22—Patton strikes at southern flank of "Bulge."

1945

Jan. 15—Germans in full retreat from the "Bulge."
Feb. 19—Yanks invade Iwo Jima.
Feb. 24—Manila liberated.
Mar. 8—Yanks smash across Rhine on captured bridge at Remagen.
Apr. 2—New U. S. 10th Army lands on Okinawa.
Apr. 12—President Roosevelt dies; Harry S. Truman becomes 33d President of the United States.
Apr. 21—Russians enter Berlin.
Apr. 26—U. S. First Army and Ukranian First Army meet at Torgau, cutting Germany in half.
Apr. 28—Mussolini shot to death by Italian Partisans.
May 4—Germany surrenders Denmark, Holland and all Northern Germany.
Aug. 5—First atomic bomb dropped on Hiroshima.
Aug. 8—Russia declares war on Japan.
Aug. 9—Second atomic bomb dropped on Nagasaki.
Aug. 14—Japan accepts Potsdam peace terms.
Aug. 30—General MacArthur and 400,000 troops land in Japan.

**The Washington Evening Star.*

Book Reviews

OLD LEATHERFACE OF THE FLYING TIGERS. By Keith Ayling. Bobbs, Merrill. $2.50.

Keith Ayling, pilot and veteran of World War I, as well as an eminent writer on aviation, is well suited to the job of presenting to the world the unusual personality of General Claire Chennault. It is, however, possible to regret that Mr. Ayling did not hold his biography up for a few months. In the light of recent events the reader must inevitably feel that much more might, and probably should, be told.

Known to the Chinese people as "Old Leatherface," friend, benefactor and protector, Major General Chennault stands in this country as the man responsible for the success and fame of the Flying Tigers. His early life as farm boy, woodsman, schoolteacher would not appear to be the usual beginning for an adventurer in the Orient. However, his job as YMCA physical education instructor led to the army in the last war where he received his commission and flight training. He developed into more than a stunt and test pilot—he wrote about aviation with vision, a believer in the future of fighters and bombers, a planner for the future of military aviation. The reader is tempted to seek for the shadow of Billy Mitchell, and sure enough, it is there.

The story of General Chennault's opportunity to put his theory of combat tactics into practice is particularly interesting. He realized that he must explore and exhaust the possibilities of each pilot and each plane in order to accomplish the impossible.

A gifted leader, he earned the respect of his men, a respect which could not have been commanded. This is a remarkable story of an extraordinary man who did a phenomenal job, and it will not be the only such story to come out of this war.

* * *

PSYCHOLOGY FOR THE ARMED SERVICES. By The National Research Council. The Infantry Journal. $3.00.

It undoubtedly is true that the more men understand of the reasons for behavior, the more readily they can master their emotions and control their reactions. *Psychology for the Armed Services* is one of the most reasonable treatises on the subject that has been published in some time.

For too many years psychology has been used as an excuse for man's derelictions instead of being made to fulfill its purpose of so explaining normal reactions that man could understand and master himself and have no need for vindications.

While this book is primarily written for the armed services, it has much of interest to any sane, thinking man who wishes to master his life rather than allow it to master him.

AN INTERNATIONAL BILL OF THE RIGHTS OF MAN. By H. Lauterpacht. Columbia University Press. $3.00.

At a time when a great portion of the world is desperately seeking an equitable way of life for all men, it is well to review history's past efforts to codify and insure the rights of man. It is also essential that definite proposals of a practical nature be outlined, in order that man may read and judge their workability.

Mr. Lauterpacht, Whewell Professor of International Law at Cambridge, has detailed a proposal for the formulation and enforcement of an international bill of rights. He leaves no stone unturned in stating the case for establishing an instrument creating legal rights and obligations among states as regards fundamental human rights. He surveys the written expression of these rights from the time of the Greeks to the present, argues the legal and philosophical bases for codifying them, and finally, presents a proposed *International Bill of the Rights of Man,* article by article. His discussion of the practicality of such a bill, and possible modifications, concludes the study.

There are inevitably many points that will cause debate, and some portions of the bill demand further clarification. This is as it should be, for a book that does not provoke healthy discussion is hardly worth the writing, and Mr. Lauterpacht is to be thanked for presenting such a well-formulated study to instigate thoughtful consideration of the points involved.

* * *

FIRST ENCOUNTER. By John Dos Passos. Philosophical Library. $2.00.

This narrative deals with the lives of front-line soldiers of 1918, as seen through the eyes of an ambulance driver. Short snatches of days, experiences simply stated, combine to produce an experience rather than a consecutive story.

More truly than many of the more profound studies comparing conditions of the two wars, this little book will impress the reader with the futility of nations' present methods of solving problems, and the unquenchable hope that keeps mankind struggling against the perennial injustices of the world, from generation to generation.

Unlike his previous books, this narrative is definitely philosophical and in several paragraphs his characters speak profoundly in simple language the thoughts that men are thinking today as they did in 1918: "We must stop the economic war, the war for existence of man against man. That will be the first step in the long climb to civilization. They must coöperate, they must learn that it is saner and more advantageous to help one another than to hinder one another in the great war against nature."

* * *

ATOMIC ENERGY FOR MILITARY PURPOSES. By H. D. Smyth. Princeton University Press. Cloth $2.50; Paper $1.25.

Received too late for review in this issue.

THE MERCHANT MARINE AND WORLD FRONTIERS. By Robert Earle Anderson. Cornell Maritime Press. $3.00.

"The by-products of war are sometimes of greater importance in their effect upon the welfare of a country or of the world than are the direct objectives for which a war is fought."

One of the by-products of this war is our greatly increased Merchant Marine. The exigencies of this war necessarily drove us to create a large shipbuilding industry and resulted in an enormous production not only of warships, but merchant ships for transporting the essentials of war to our own troops and our Allies.

We are now faced with the serious problem as to whether our Merchant Marine is to be a national asset—opening a new objective and wider field to American trade—or just an expensive surplus of the war to be discarded as unsalvageable.

Too few citizens are aware of the important factors involved in this problem. With a great portion of our country land-bound with the exception of rivers, we are not entirely conscious of the advantages to be gained by maintaining our Merchant Marine at its built-up strength.

Mr. Anderson has written a thoroughly comprehensible book, covering the background and problems of American shipping, and pointing out the future advantages, if our opportunities are not allowed to slip through our fingers.

It would be well at this time for Americans interested in their nation's advancement to read this volume, and remember the lessons of history—in which every powerful nation has been judged in accordance with the number of its ships that sailed the 7 seas.

* * *

TIME BOMB. By E. A. Piller. Arco Publishing Co. $2.00.

One of several books published in recent months to expose the fascist elements in this country, *Time Bomb* adds little to the already open records of race hating groups in America. It is important only in that it reiterates the records of those who are sowing dissentious seeds in our nation, in the hope that each reiteration will waken more of the indifferent among us whose weak hands hold the balance between democracy and fascism.

One notable addition to this book is a list of organizations throughout the nation that are fighting to uphold the traditions of democracy in the United States—the right of *all* men to "life, liberty, and the pursuit of happiness."

* * *

CARTOONS FOR FIGHTERS. Edited by Sgt. Frank Brandt. Fighting Forces Series. Infantry Journal. 25¢.

This is a collection of over 350 cartoons and gags used by the Armed Forces to ease the task of learning the tactics of modern warfare. They are not only amusing now, but in future years will serve as an entertaining reminder of days past. Readers of The Cavalry Journal will find some familiar cartoons among those selected for publication from the military magazines.

An Official Report to the American People

Atomic Energy for Military Purposes

By

H. D. SMYTH

Consultant, Manhattan Engineer District

(Prepared at the Request of Major General L. R. Groves, U. S. Army)

From the Foreword by General Groves . . .

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SELECTED SPEECHES AND STATEMENTS OF GENERAL OF THE ARMY GEORGE C. MARSHALL. Edited by Major H. A. DeWeerd. Infantry Journal. $2.75.

A compilation of selected speeches and statements made by General Marshall, including statements made before Congressional committees, this book contains much interesting material. Any such book should be, at least partially, an indication of the thoughts and character of the man, as well as an indication of the comparative importance of trends and events as visualized by the speaker.

PERSIAN GULF COMMAND. By Joel Sayre. Random House. $2.00.

The job of the Persian Gulf Command was to deliver American supplies across Iran to the hard-pressed Russians. It is a story of men who worked without fanfare—steadily, heartbreakingly, and backbreakingly. It is to Mr. Sayre's credit that he has recognized the magnificent and all-important job that was done by this command. For the sake of these men, however, it is regretted that the author became so fascinated with the country, customs and habits of Iran that too much of his book is taken up with delightful stories of a strange and Arabian-Nights sort of people rather than the men of the Persian Gulf Command.

The book is extremely interesting, and until another is written giving in more detail the job done and the stories of the men who did it, should be read at least as an introduction to a command little known and not sufficiently appreciated.

500 POSTWAR JOBS FOR MEN. Vocational Guidance Research. Doubleday, Doran. $2.50.

To men leaving the service and seeking new employment this is one of the most valuable books on the market. The introduction details the best methods of taking both job-inventory and self-inventory, which, if honestly done, will do much to insure the placing of the individual in the job best suited to his talents and personality. Advice is given as to organizations disseminating inexpensive occupational material, suggested approaches and sources of job selection.

The body of the book is a dictionary, alphabetically arranged, of 500 postwar jobs. Each description gives the Present Outlook, Job Description, Requirements, Advantages, Disadvantages, Earnings, Advancement Opportunities, and Where to Apply.

THE GASHOUSE GANG. By J. Roy Stockton. A. S. Barnes. $2.75.

Perhaps Ring Lardner could have done an excellent job of this history of the St. Louis Cardinals—but most readers will agree that he would have had a hard time bettering Mr. Stockton's stimulating record.

To all lovers of baseball *The Gashouse Gang,* with its tall tales of the Deans, Pepper Martin, "Good field no hit" Gonzalez, and the untamed Joe Medwick, is unhesitatingly recommended. It will tide over the long winter evenings until baseball season is here again.

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